

Lisbon 14

T305, R24E, S. 14

4303730082

FILE NOTATIONS

Entered in NID File
Location Map Pinned
Card Indexed

Checked by Chief
Approval Letter
Disapproval Letter

COMPLETION DATA:

Date Well Completed 9-21-72

Location Inspected

✓ V..... WW..... TA.....

Bond released

W..... OS..... PA.....

State or Fee Land

LOGS FILED

Driller's Log..... ✓

Electric Logs (No.) ✓

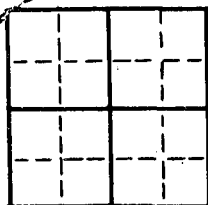
E..... I..... Dual I Lat..... GR-N..... Micro.....

PHC Sonic GR..... Lat..... Mi-L..... Sonic.....

CBLog..... CCLog..... Others.....

(SUBMIT IN DUPLICATE)

LAND:



STATE OF UTAH
OIL & GAS CONSERVATION COMMISSION
 SALT LAKE CITY, UTAH

Fee and Patented.....☐
 State☐
 Lease No.
 Public Domain☒
 Lease No. SL 070008-A
 Indian☐
 Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

Notice of Intention to Drill.....	<input checked="" type="checkbox"/>	Subsequent Report of Water Shut-off.....	
Notice of Intention to Change Plans.....	<input type="checkbox"/>	Subsequent Report of Altering Casing.....	
Notice of Intention to Redrill or Repair.....	<input type="checkbox"/>	Subsequent Report of Redrilling or Repair.....	
Notice of Intention to Pull or Alter Casing.....	<input type="checkbox"/>	Supplementary Well History.....	
Notice of Intention to Abandon Well.....	<input type="checkbox"/>		
	<input type="checkbox"/>		
	<input type="checkbox"/>		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Lisbon Unit

June 5, 1972

Well No. #B-814 is located 2601 ft. from ☒ line and 1482 ft. from ☒ line of Sec. 14

SW Sec. 14

T. 30 S.

R. 24 E.

(1/4 Sec. and Sec. No.)

(Twp.)

(Range)

(Meridian)

Lisbon

San Juan

Utah

(Field)

(County or Subdivision)

(State or Territory)

Ground (Ungraded)

The elevation of the ~~Derrick floor~~ above sea level is 6468 feet.

A drilling and plugging bond has been filed with

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important work, surface formation, and date anticipate spudding-in.)

PROPOSE TO:

Drill a 13-1/2" hole to 1000'. Run and cement 9-5/8" casing. Drill a 7-7/8" hole to T.D. Run logs. Run and cement 5-1/2" casing. Perforate and complete using 3-1/2" non-upset tubing.

Double ram 3000 psi BOP will be installed on 9-5/8" casing, tested for pressure on installation and operation tested daily.

APPROVED BY DIVISION OF
OIL & GAS CONSERVATION

DATE

6-7-72

BY

CB Fights

43-037-30082

I understand that this plan of work must receive approval in writing by the Commission before operations may be commenced.

Company Union Oil Company of California

Address P. O. Box 2620

Casper, Wyoming 82601

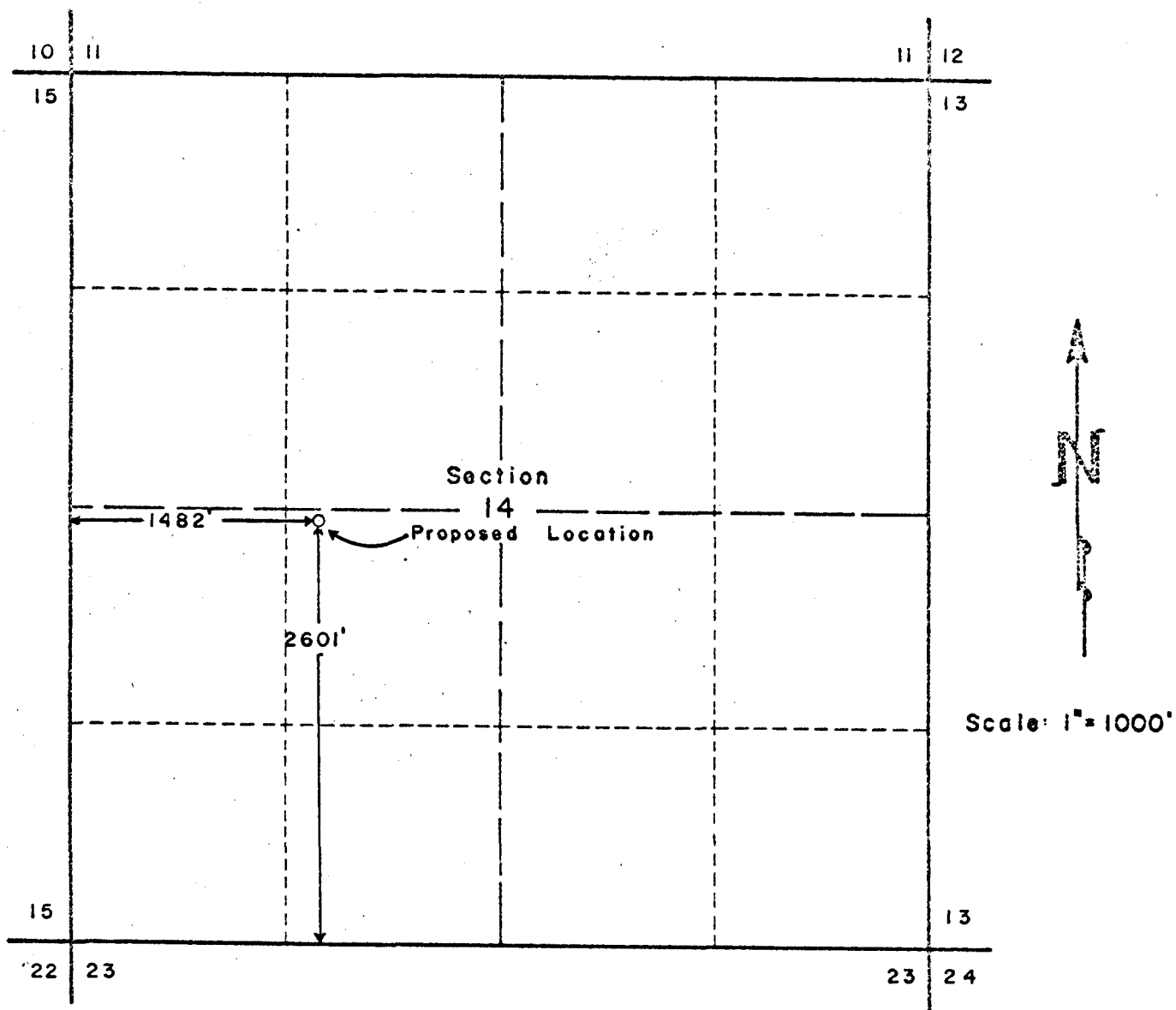
By

A. T. Mannon, Jr.

Title District Drilling Superintendent

INSTRUCTIONS: A plat or map must be attached to this form showing the location of all leases, property lines, drilling and producing wells, within an area of sufficient size so that the Commission may determine whether the location of the well conforms to applicable rules, regulations and orders.

235-1488 (302)



WELL LOCATION: UNION OIL CO. of CALIFORNIA LISBON UNIT B-814

Located 2601 feet North of the South line and 1482 feet East of the West line of Section 14
 Township 30 South Range 24 East, Salt Lake Base And Meridian
 San Juan County, Utah
 Existing ground elevation determined at 6468 feet based on adjoining locations.

I hereby certify the above plat represents a survey made under my supervision and that it is accurate to the best of my knowledge and belief.

Frederick H. Reed

FREDERICK H. REED
 Registered Land Surveyor
 Utah No. 2689

UNION OIL CO. of CALIFORNIA
 Durango, Colorado

WELL LOCATION PLAT
 SEC. 14, T30S, R24E
 San Juan County, Utah

CLARK - REED & ASSOC.
 Durango, Colorado

DATE: May 4, 1972
 FILE NO: 72039

STATE OF UTAH
OIL & GAS CONSERVATION COMMISSION

SUBMIT IN TRIPPLICATE*
(Other instructions on reverse side)

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. SL 070008-A
2. NAME OF OPERATOR Union Oil Company of California		6. IF INDIAN, ALLOTTEE OR TRIBE NAME
3. ADDRESS OF OPERATOR P. O. Box 2620 - Casper, Wyoming 82601		7. UNIT AGREEMENT NAME Lisbon Unit
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface <div style="text-align: center; margin-top: 10px;">1482' FWL, 2601' FSL</div>		8. FARM OR LEASE NAME Lisbon Unit
14. PERMIT NO.		9. WELL NO. B-814
15. ELEVATIONS (Show whether DF, RT, GR, etc.) <div style="text-align: center; margin-top: 10px;">6468' GR (Ungraded)</div>		10. FIELD AND POOL, OR WILDCAT Lisbon
		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec. 14, T.30S, R.24E.
		12. COUNTY OR PARISH 13. STATE San Juan Utah

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> SHOOT OR ACIDIZE <input type="checkbox"/> REPAIR WELL <input type="checkbox"/> (Other) <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/> MULTIPLE COMPLETE <input type="checkbox"/> ABANDON* <input type="checkbox"/> CHANGE PLANS <input type="checkbox"/>
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SUBSEQUENT REPORT OF:

WATER SHUT-OFF <input type="checkbox"/> FRACTURE TREATMENT <input type="checkbox"/> SHOOTING OR ACIDIZING <input type="checkbox"/> (Other) <input checked="" type="checkbox"/> <u>Supplementary Well History</u>	REPAIRING WELL <input type="checkbox"/> ALTERING CASING <input type="checkbox"/> ABANDONMENT* <input type="checkbox"/> (NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)
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17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Spudded well at 6:00 p.m. 7-8-72. Preparing to run casing.

18. I hereby certify that the foregoing is true and correct

SIGNED R. L. Clemons

TITLE Drilling Engineer

DATE 7-11-72

(This space for Federal or State office use)

APPROVED BY _____
CONDITIONS OF APPROVAL, IF ANY:

TITLE _____

DATE _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well ☒ gas well ☐ other ☐ Shut In

2. NAME OF OPERATOR
Union Oil Company of California

3. ADDRESS OF OPERATOR
P. O. Box 2620 - Casper, WY 82602-2620

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 1482' FWL & 2601' FSL
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:		SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	<input type="checkbox"/>	<input type="checkbox"/>
FRACTURE TREAT	<input type="checkbox"/>	<input type="checkbox"/>
SHOOT OR ACIDIZE	<input type="checkbox"/>	<input type="checkbox"/>
REPAIR WELL	<input type="checkbox"/>	<input type="checkbox"/>
PULL OR ALTER CASING	<input type="checkbox"/>	<input type="checkbox"/>
MULTIPLE COMPLETE	<input type="checkbox"/>	<input type="checkbox"/>
CHANGE ZONES	<input type="checkbox"/>	<input type="checkbox"/>
ABANDON*	<input type="checkbox"/>	<input type="checkbox"/>

(other) Notice of Intention to Squeeze
Perfs, Perf, Treat, and Test

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Drilled in 1972
TD 8,965'; ETD 8,783'
9-5/8" @ 1,003'
5-1/2" @ 8,965'

Perfs: 8,862-8,875') Cmt. sqzd. below
8,854-8,858') retainer at
8,843-8,848') 8,829'
8,802-8,808') Cmt. sqzd. below
8,789-8,793') retainer at 8,783'
8,772-8,781' - Open

PROPOSED PLAN OF PROCEDURE

MIRU pulling unit. Kill well with produced water. Install BOP. Release packer. Circulate hole with produced water. POOH. Lay down gas lift mandrels. RIH with cement retainer on 2-7/8" tubing. Set at +8,735'. Squeeze perforations, 8,772-8,781', with 100 sacks of cement. Sting out of retainer

(CONTINUED ON ATTACHED SHEET)

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED R. G. Ladd, Jr. TITLE District Drilling Superintendent DATE 7-12-82

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____
CONDITIONS OF APPROVAL, IF ANY:

**APPROVED BY THE STATE
OF UTAH DIVISION OF
OIL, GAS, AND MINING**

DATE: 7/20/82

BY: [Signature]

U.S. Geological Survey
Form 9-331

Union Oil Company of California
Lisbon Unit Well No. B-814
San Juan County, Utah
7-12-82
Page 2

and reverse out. POOH with tubing. RIH with 4-5/8" bit and check ETD. Clean out if necessary. Perforate Mississippian, 8,662-8,670', with casing gun (4 spf). RIH with packer and tubing to $\pm 8,500'$. Displace hole with packer fluid. Set packer. N.D. BOP. Install Xmas tree. Swab and test. Treat Mississippian perforations with 2,000 gallons of 15% HCl acid with NE & LST additives. Maintain injection pressure of treatment below 1800 psi using a diverter. Swab and test well. Rig down and return to production.

STATE OF UTAH
OIL & GAS CONSERVATION COMMISSION

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. <input type="checkbox"/> OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER		5. LEASE DESIGNATION AND SERIAL NO. SL 070008-A
2. NAME OF OPERATOR Union Oil Company of California		6. IF INDIAN, ALLOTTEE OR TRIBE NAME
3. ADDRESS OF OPERATOR P. O. Box 2620 - Casper, Wyoming 82601		7. UNIT AGREEMENT NAME Lisbon Unit
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface 1482' FWL, 2601' FSL		8. FARM OR LEASE NAME Lisbon Unit
14. PERMIT NO.	15. ELEVATIONS (Show whether DF, RT, GR, etc.) 6468' GR (Ungraded)	9. WELL NO. B-814
		10. FIELD AND POOL, OR WILDCAT Lisbon
		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec. 14, T.30S., R.24E.
		12. COUNTY OR PARISH San Juan
		13. STATE Utah

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>
(Other) <input type="checkbox"/>	

SUBSEQUENT REPORT OF:

WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
(Other) <input checked="" type="checkbox"/> Supplementary Well History	

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Ran 25 joints 43 $\frac{1}{2}$ " N-80, LT&C, 9-5/8" casing. Landed at 1003' KB. Cemented with 450 sacks 50-50 pozmix with 4% gel, 1/4# Celloflake and 1# Tufplug per sack, plus 150 sacks regular class "C" cement with 1/4# Celloflake and 1# Tufplug and 2% CaCl. W.O.C.

18. I hereby certify that the foregoing is true and correct

SIGNED R. L. Clemons

TITLE Drilling Engineer

DATE 7-14-72

(This space for Federal or State office use)

APPROVED BY _____
CONDITIONS OF APPROVAL, IF ANY:

TITLE _____

DATE _____

STATE OF UTAH

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)Form approved.
Budget Bureau No. 42-R142

OIL & GAS CONSERVATION COMMISSION

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		7. UNIT AGREEMENT NAME Lisbon Unit	
2. NAME OF OPERATOR Union Oil Company of California		8. FARM OR LEASE NAME Lisbon Unit	
3. ADDRESS OF OPERATOR P. O. Box 2620 - Casper, Wyoming 82601		9. WELL NO. B-912	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface 505' FSL, 1825' FWL (SE SW)		10. FIELD AND POOL, OR WILDCAT Lisbon	
14. PERMIT NO.		15. ELEVATIONS (Show whether DF, RT, GR, etc.) 6368' D.F.	
		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec. 12, T.30S., R.24E.	
		12. COUNTY OR PARISH San Juan	13. STATE Utah

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF ☐FRACTURE TREAT ☐SHOOT OR ACIDIZE ☐REPAIR WELL ☐(Other) ☐PULL OR ALTER CASING ☐MULTIPLE COMPLETE ☐ABANDON* ☐CHANGE PLANS ☐

SUBSEQUENT REPORT OF:

WATER SHUT-OFF ☐FRACTURE TREATMENT ☐SHOOTING OR ACIDIZING ☐(Other) ☐REPAIRING WELL ☐ALTERING CASING ☐ABANDONMENT* ☐(Other) Supplementary Well History ☒

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

MIRU service unit. Killed well with brine water. POH with tubing & packer. RIH w/6" bit. C.O. sand 8642-8820'. Mixed 1000# wide range Unibeads and 1000# button Unibeads in water to maintain 75% circulation while cleaning out.

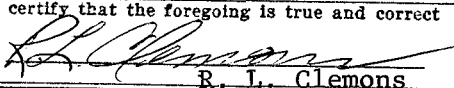
Set Baker Model "D" production retainer at 8700'. Set Baker Model "F" production retainer at 8496'. Ran 2-7/8" J-55 tubing with BFC "F" nipple at 8697' and BFC "L" sliding sleeve at 8628' with tail pipe to 8711' and locator seals in each production packer. Perforated 8750-8762', 4 spf.

Attempted to acidize new perfs with 1500 gals reg 15% HCl. Tubing burst at 2010'. POH. Displaced tubing joint. Displaced acid into perfs 8600-8672'. RIH w/same tubing detail. Attempted to acidize with 1500 gals 15% HCl. Burst tubing between packers and acidized 8600-8672'. Swabbed acid back and tested well 7 days flowing at 193 BO + 21 BW/24 hours, 24/64" choke, 1400 psi, 3650 MCFD.

Reperforated 8750-8762', 4 spf. Released from packers and POH. RIH w/same tubing assy replacing tubing between packers w/C-75 grade and extending tubing tail pipe to 8760'. Acidized 8750-8762' with 1500 gals reg 15% HCl. FBD at 3750 psi. Treated at 2-4 bpm at 0-200 psi. Swabbed acid back. Flow test 7-20-72 - Flowed 390 BO + 62 BW/24 hours, 45/64" choke, T.P. 1020 psi, 5,600 MCFD.

18. I hereby certify that the foregoing is true and correct

SIGNED



TITLE

Drilling Engineer

DATE

8-1-72

(This space for Federal or State office use)

APPROVED BY

CONDITIONS OF APPROVAL, IF ANY:

TITLE

DATE

*See Instructions on Reverse Side

STATE OF UTAH
OIL & GAS CONSERVATION COMMISSION

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. <input type="checkbox"/> OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER		5. LEASE DESIGNATION AND SERIAL NO. SL 070008-A
2. NAME OF OPERATOR Union Oil Company of California		6. IF INDIAN, ALLOTTEE OR TRIBE NAME
3. ADDRESS OF OPERATOR P. O. Box 2620 - Casper, Wyoming 82601		7. UNIT AGREEMENT NAME Lisbon Unit
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface 1482' FWL, 2601' FSL		8. FARM OR LEASE NAME Lisbon Unit
14. PERMIT NO.		9. WELL NO. B-814
15. ELEVATIONS (Show whether DF, RT, GR, etc.) 6468' GR (Ungraded)		10. FIELD AND POOL, OR WILDCAT Lisbon
		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec. 14, T.30S., R.24E.
		12. COUNTY OR PARISH San Juan
		13. STATE Utah

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>
(Other) <input type="checkbox"/>	

SUBSEQUENT REPORT OF:

WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
(Other) <input checked="" type="checkbox"/> Supplementary Well History	

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Drilled to 8965' T.D. Ran Dipmeter Survey, BHC Sonic-GR w/Comp Neutron Logs. Ran and cemented 271 joints and 1 piece (8949') 5-1/2", OD, 17#, K-55, 8R, STC casing at 8965' with 900 cubic feet salt saturated Halocolite, 10% gel cement with 1# gilsonite/sack, plus 150 cubic feet class "C" latex cement, 10% salt. J.C. 1:00 p.m. 8-27-72. Landed casing and released rig at 4:00 p.m. 8-27-72.

18. I hereby certify that the foregoing is true and correct

SIGNED A. T. Mannon, Jr. TITLE District Drilling Supt. DATE 8-28-72

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

STATE OF UTAH
OIL & GAS CONSERVATION COMMISSION

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> 2. NAME OF OPERATOR Union Oil Company of California 3. ADDRESS OF OPERATOR P. O. Box 2620 - Casper, Wyoming 82601 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface <div style="text-align: center; margin-top: 10px;">1482' FWL, 2601' FSL</div>		5. LEASE DESIGNATION AND SERIAL NO. SL 070008-A 6. IF INDIAN, ALLOTTEE OR TRIBE NAME 7. UNIT AGREEMENT NAME Lisbon Unit 8. FARM OR LEASE NAME Lisbon Unit 9. WELL NO. B-814 10. FIELD AND POOL, OR WILDCAT Lisbon 11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec. 14, T.30S., R.24E. 12. COUNTY OR PARISH 13. STATE San Juan Utah
14. PERMIT NO.	15. ELEVATIONS (Show whether DF, RT, GR, etc.) <div style="text-align: center; margin-top: 10px;">6468' GR (Ungraded)</div>	

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> SHOOT OR ACIDIZE <input type="checkbox"/> REPAIR WELL <input type="checkbox"/> (Other) <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/> MULTIPLE COMPLETE <input type="checkbox"/> ABANDON* <input type="checkbox"/> CHANGE PLANS <input type="checkbox"/>
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SUBSEQUENT REPORT OF:

WATER SHUT-OFF <input type="checkbox"/> FRACTURE TREATMENT <input type="checkbox"/> SHOOTING OR ACIDIZING <input type="checkbox"/> (Other) <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/> ALTERING CASING <input type="checkbox"/> ABANDONMENT* <input type="checkbox"/> Supplementary Well History <input checked="" type="checkbox"/>
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(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

8965' T.D.

RIH with 4-3/4" bit on 3-1/2" OD EUE Tubing. Tagged ETD at 8935'. POH. Ran GR Depth Control Log. Perforated 8843-48', 8854-58', 8862-75', 2 spf, with cased hyper-jets. RIH with packer. Set packer at 8768' with tail at 8878'. Swabbed to bottom. No fluid entry. SION. Next a.m. T.P. 0 psi. No fluid entry overnight. Released pkr.

Spotted 2000 gals 28% HCl at 8880'. Pulled up 4 joints. Set packer at 8657' with tail at 8753'. Pressured annulus to 1000 psi. Displaced acid with 88 BW at 4-6 BPM at 0 psi. Shut down with well on vac. Total load 136 bbls. Swabbed 4-1/2 hours. Recovered estimated 100 bbls water and acid. F.L. 2400-2800'. S.D.O.N. In a.m., T.P. 200 psi. Opened and dead in 5 mins. Swabbing. Incomplete.

18. I hereby certify that the foregoing is true and correct

SIGNED A. T. Mannon, Jr. TITLE District Drilling Supt. DATE 9-7-72

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
 CONDITIONS OF APPROVAL, IF ANY:

OIL & GAS CONSERVATION COMMISSION

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. S.L. 070008-A	
2. NAME OF OPERATOR Union Oil Company of California		6. IF INDIAN, ALLOTTEE OR TRIBE NAME	
3. ADDRESS OF OPERATOR P. O. Box 2620 - Casper, Wyoming 82601		7. UNIT AGREEMENT NAME Lisbon Unit	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface 1482' FWL, 2601' FSL		8. FARM OR LEASE NAME Lisbon Unit	
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15. ELEVATIONS (Show whether DF, RT, GR, etc.) 6468' GR (Ungraded)		10. FIELD AND POOL, OR WILDCAT Lisbon	
		11. SEC., T., R., E., OR BLK. AND SURVEY OR AREA Sec. 14, T.30S., R.24E.	
		12. COUNTY OR PARISH San Juan	13. STATE Utah

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF ☐FRACTURE TREAT ☐SHOOT OR ACIDIZE ☐REPAIR WELL ☐(Other) ☐PULL OR ALTER CASING ☐MULTIPLE COMPLETE ☐ABANDON* ☐CHANGE PLANS ☐

SUBSEQUENT REPORT OF:

WATER SHUT-OFF ☐FRACTURE TREATMENT ☐SHOOTING OR ACIDIZING ☐(Other) Supplementary Well History ☒REPAIRING WELL ☐ALTERING CASING ☐ABANDONMENT* ☐

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

8965' T.D.

Swabbed estimated 165 BW w/trace oil/11 hours. Recovered estimated 114 BW over load. Water sample salt 120,000 ppm pH 6.7. Swabbed estimated 75 BW/5 hours with trace oil. F.L. steady @ 2800'. Released packer and installed BOP. POH. Water sample salt 77,000 ppm, pH 6.7. Set Baker "K" cement retainer @ 8829'. RIH with tubing and set into retainer. Pumped 30 BW @ 0 psi. Pulled out of retainer and filled hole with water. Set into retainer and pressured annulus to 1000 psi. Pumped 200 sacks 50-50 pozmix, 2% gel, 10% salt (46.7 bbls). Displaced cement with 38 bbls. water @ 0 psi. S.D. 15 mins, pumped 5 bbls. @ 0 psi. S.D. 15 mins. Pumped 2 bbls water and pressure increased to 2500 psi. Pulled out of retainer. Could not move cement in tubing at 3200 psi. Estimated 3680' tubing cemented, 14 bbls. cement in formation. POH. Laid down 3-1/2" tubing. RIH with 4-3/4" bit on 2-7/8" tubing. Tagged cement at 8810'. Drilled cement stringers to 8829'. POH with 4-3/4" bit.

Perforated 8789-8793' & 8802-8808', 2 spf, 4" cased Hyperjet. RIH with Baker "R-3" packer on 2-7/8" tubing. Set packer at 8752' with tubing at 8825'. Swabbed to packer. S.D. 1 hour. No fluid entry. SION. In a.m. T.P. 0 psi. 800' fluid entry/13 hours. Appeared to be 100% water. Spotted 2000 gallons 28% HCl @ perms. w/600 psi back pressure on annulus. With acid on formation, pressure broke to vac. Set packer at 8752' with tubing at 8773'. Loaded annulus with 27 BW (F.L. 1800'). Pressured annulus to 500 psi.

(CONTINUED ON ATTACHED SHEET)

18. I hereby certify that the foregoing is true and correct

SIGNED

For: A. T. Mannon, Jr.

TITLE

Drilling Engineer

DATE

9-19-72

(This space for Federal or State office use)

APPROVED BY

CONDITIONS OF APPROVAL, IF ANY:

TITLE

DATE

Lisbon Unit No. B-814

9-19-72

Page 2

Displaced tubing with 51 BW @ 4 bpm @ 100 psi. Ran swab. F.L. 2800'. Swabbed 120 BW/6 hours. 9 BLW due. Gassing between runs with show of oil. S.D.O.N. In a.m. T.P. 200 psi. Ran swab. F.L. 2500'. First recovered 10 gallons oil on top of water. Swabbed 11 hours estimated 200 BW gas cut w/trace oil. Water sample 62,000 ppm salt. F.L. 3000'. Squeezed with 300 cubic feet 50-50 pozmix + salt with retainer set at 8783'. POH w/2-7/8" tubing.

Ran Radioactive Tracer Survey. Showed injection into zone 8802-8808'. No loss above or below. Maximum loss at 8804'. Conclude no channel. Set cement retainer at 8783'. Ran tubing. Filled hole with 50 BW and reversed circulated few barrels. Stung into retainer - spaced out. Pulled out of retainer. Restung into retainer and pressured backside to 1000#. Squeeze cemented with 185 cubic feet @ 2500#. Reversed out 173 cubic feet 50-50 pozmix + 10% salt. (Mixed 358 cubic feet).

Perforated 8772-8781' with 4" casing gun at 2 spf. Ran tubing and packer with packer set at 8748' and tail pipe at 8779'. Swabbed to packer. Slight show gas. 14 hour SITP - 125#. Preparing to treat.

STATE OF UTAH
OIL & GAS CONSERVATION COMMISSION

SUBMIT IN TRIPPLICATE*
(Other instructions on reverse side)

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> 2. NAME OF OPERATOR Union Oil Company of California 3. ADDRESS OF OPERATOR P. O. Box 2620 - Casper, Wyoming 82601 4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface <div style="text-align: center;">1482' FWL, 2601' FSL</div>		5. LEASE DESIGNATION AND SERIAL NO. S.L. 070008-A 6. IF INDIAN, ALLOTTEE OR TRIBE NAME 7. UNIT AGREEMENT NAME Lisbon Unit 8. FARM OR LEASE NAME Lisbon Unit 9. WELL NO. B-814 10. FIELD AND POOL, OR WILDCAT Lisbon 11. SEC. T., R., M., OR BLK. AND SURVEY OR AREA Sec. 14, T.30S., R.24E. 12. COUNTY OR PARISH 13. STATE San Juan Utah
14. PERMIT NO.	15. ELEVATIONS (Show whether DF, RT, OR, etc.) <div style="text-align: center;">6468' GR (Ungraded)</div>	

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF ☐

FRACTURE TREAT ☐

SHOOT OR ACIDIZE ☐

REPAIR WELL ☐

(Other) ☐

PULL OR ALTER CASING ☐

MULTIPLE COMPLETE ☐

ABANDON* ☐

CHANGE PLANS ☐

SUBSEQUENT REPORT OF:

WATER SHUT-OFF ☐

FRACTURE TREATMENT ☐

SHOOTING OR ACIDIZING ☐

(Other) Supplementary Well History ☒

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

REPAIRING WELL ☐

ALTERING CASING ☐

ABANDONMENT* ☐

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

8965' T.D.

Ran swab. Found 1200' fluid in hole. Swabbed down. Recovered 60% oil, 23% water, 17% BS&W, 49,000 ppm Chl.

Acidized with 500 gallons 28% HCl. Spotted acid opposite perforations. Set packer at 8716', tail pipe at 8747'. Pressured to 2500#. Bled off slowly. Repressured twice then broke to zero. Displaced acid with zero pressure, 76 bbls. load. Swabbed two hours, recovered 40 barrels acid water load. F.L. 2800'. Shut in. 13 hour SITP-425#. Opened to pit. Flowed 3 BO and died. Ran swab 5 times. Well kicked off and flowed to pit. Put thru separator with 1" choke. Flowed 635 BO/16-1/2 hours with 244 BW plus 1.0 MMCF/D at 340# T.P. All load recovered.

I.P. - Daily Rate: 922 BOPD, 355 BWPD, 1.0 MMCF/D, 1085 cf/bbl.

18. I hereby certify that the foregoing is true and correct

SIGNED

A. T. Mannon, Jr.
A. T. Mannon, Jr.

TITLE

District Drilling Supt.

DATE

9-28-72

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

STATE OF UTAH

SUBMIT IN DUPLICATE*

(See other instructions on reverse side)

OIL & GAS CONSERVATION COMMISSION

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *

1a. TYPE OF WELL: OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> DRY <input type="checkbox"/> Other _____				5. LEASE DESIGNATION AND SERIAL NO. SL 070008-A	
b. TYPE OF COMPLETION: NEW WELL <input checked="" type="checkbox"/> WORK OVER <input type="checkbox"/> DEEP-EN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> DIFF. RESVR. <input type="checkbox"/> Other _____				6. IF INDIAN, ALLOTTEE OR TRIBE NAME	
2. NAME OF OPERATOR Union Oil Company of California				7. UNIT AGREEMENT NAME Lisbon Unit	
3. ADDRESS OF OPERATOR P. O. Box 2620 - Casper, Wyoming 82601				8. FARM OR LEASE NAME Lisbon Unit	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)* At surface 1482' FWL, 2601' FSL At top prod. interval reported below At total depth				9. WELL NO. B-814	
14. PERMIT NO. 43-037-30082 DATE ISSUED				10. FIELD AND POOL, OR WILDCAT Lisbon	
15. DATE SPUDDED 7-8-72 16. DATE T.D. REACHED 8-24-72 17. DATE COMPL. (Ready to prod.) 9-21-72				11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA Sec. 14, T.30S., R.24E.	
18. ELEVATIONS (DF, REB, RT, GR, ETC.)* 6468' GR (Unger)				12. COUNTY OR PARISH San Juan	
19. ELEV. CASINGHEAD 6482' KB				13. STATE Utah	
20. TOTAL DEPTH, MD & TVD 8965' TD		21. PLUG, BACK T.D., MD & TVD 8783' ETD		22. IF MULTIPLE COMPL., HOW MANY* →	
23. INTERVALS DRILLED BY → 0-TD				24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)* 8772-8781'	
25. WAS DIRECTIONAL SURVEY MADE Yes				26. TYPE ELECTRIC AND OTHER LOGS RUN Dipmeter Survey, BHC Sonic-GR w/Comp Neutron, GR Depth Control Log	
27. WAS WELL CORED No				28. CASING RECORD (Report all strings set in well)	
CASING SIZE		WEIGHT, LB./FT.		DEPTH SET (MD)	
9-5/8"		43.5#		1003'	
5-1/2"		17#		8965'	
HOLE SIZE		CEMENTING RECORD		AMOUNT PULLED	
13-1/2"		450 sx 50-50 poz + 150 sx regular			
7-7/8"		900 cf salt saturated			
		Halcolite + 150 cf latex cement			
29. LINER RECORD				30. TUBING RECORD	
SIZE		TOP (MD)		SIZE	
				2-7/8"	
BOTTOM (MD)		SACKS CEMENT*		DEPTH SET (MD)	
				8747'	
SCREEN (MD)		PACKER SET (MD)			
		8716'			
31. PERFORATION RECORD (Interval, size and number)				32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.	
8843-48') 8772-8781'-2spf				DEPTH INTERVAL (MD)	
8854-58')				AMOUNT AND KIND OF MATERIAL USED	
8862-75') - Squeezed				8843-8875' 2000 gals 28% HCl	
8789-93')				8789-8808' 2000 gals 28% HCl	
8802-08')				8772-8781' 500 gals 28% HCl	
33.* PRODUCTION					
DATE FIRST PRODUCTION 9-21-72		PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) Flowing			WELL STATUS (Producing or shut-in) Producing
DATE OF TEST 9-23-72		HOURS TESTED 24 hours		CHOKE SIZE -	
PROD'N. FOR TEST PERIOD →		OIL—BBL. 706		GAS—MCF. 1.0 M	
WATER—BBL. 325		GAS-OIL RATIO 1415/1			
FLOW. TUBING PRESS. 290		CASING PRESSURE -		CALCULATED 24-HOUR RATE →	
OIL—BBL. 706		GAS—MCF. 1.0 M		WATER—BBL. 325	
OIL GRAVITY-API (CORR.) 51.4					
34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) Used for Fuel & Reinject				TEST WITNESSED BY Ralph Cline	
35. LIST OF ATTACHMENTS Directional Survey (2 pages)					
36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records					
SIGNED <u>A. T. Mannon, Jr.</u>		TITLE <u>District Drilling Supt.</u>		DATE <u>10-9-72</u>	

*(See Instructions and Spaces for Additional Data on Reverse Side)

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 38, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments. **Items 22 and 24:** If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool. **Item 33:** Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

Blowout Preventers tested daily in accordance with Union Oil Company Policy and reported by Drilling Contractor.

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF: CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.

38. GEOLOGIC MARKERS

NAME	TOP	
	MEAS. DEPTH	TRUE VERT. DEPTH
Paradox "A"	4040'	4036'
Based Salt	8350'	8323'
Mississippian	8470'	8442'
Devonian	8916'	8844'
T.D. (Driller's)	8965'	8933'

P W

OCT 12 1972

union76

	Date	No.
	11/1/72	
To	At	
State of Utah Utah Oil & Gas Cons. Comm.	1588 West North Temple Salt Lake City, Utah 84116	
From	At	
Charles F. Johnson	P. O. Box 3372 Durango, Colorado 81301	

Transmitting the following:

2 copies	Compensated Neutron-BHC-Sonic Log
2 "	BHC-Sonic Log-Gamma Ray
	UNION OIL COMPANY OF CALIFORNIA #B-814 Lisbon Unit Sec. 14, T. 30S., R. 24E. San Juan County, Utah
PLEASE SIGN AND RETURN ONE COPY OF TRANSMITTAL.	
DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL AND GAS CONSERVATION NOV 3 1972 <i>[Signature]</i>	

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil ☒ well gas ☐ well other ☐
2. NAME OF OPERATOR
Union Oil Company of California
3. ADDRESS OF OPERATOR
P. O. Box 2620 - Casper, WY 82602-2620
4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 1482' FWL & 2601' FSL
AT TOP PROD. INTERVAL: Straight Hole
AT TOTAL DEPTH: Straight Hole
16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:

- TEST WATER SHUT-OFF ☐
FRACTURE TREAT ☐
SHOOT OR ACIDIZE ☐
REPAIR WELL ☐
PULL OR ALTER CASING ☐
MULTIPLE COMPLETE ☐
CHANGE ZONES ☐
ABANDON* ☐

SUBSEQUENT REPORT OF:

- ☐
☐
☐
☐
☐
☐
☐
☐

(other) SQUEEZED PERFS & PERFORATED

5. LEASE
SL 070008-A
6. IF INDIAN, ALLOTTEE OR TRIBE NAME
7. UNIT AGREEMENT NAME
Lisbon Unit
8. FARM OR LEASE NAME
Lisbon Unit
9. WELL NO.
B-814
10. FIELD OR WILDCAT NAME
Lisbon
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 14, T.30S., R.24E.
12. COUNTY OR PARISH
San Juan
13. STATE
Utah
14. API NO.
15. ELEVATIONS (SHOW DF, KDB, AND WD)

RECEIVED
SEP 13 1982

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

DIVISION OF
OIL, GAS & MINING

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

TD 8,965'; ETD 8,783'
9-5/8" @ 1,003'
5-1/2" @ 8,965'

Perfs: 8,862-8,875') Cmt. sqzd. below
8,854-8,858') retainer at
8,843-8,848') 8,829'
8,802-8,808') Cmt. sqzd. below
8,789-8,793') retainer at 8,783'
8,772-8,781' - Open

MIRU well service unit on 8-26-82. Bled casing pressure to zero. SITP zero. Pumped 137 bbls. of produced water down annulus. Loaded tubing with 25 bbls. of water. N.U. BOP. POOH with 2-7/8" tubing, gas lift valves, and packer. RIH with cement retainer on 2-7/8" tubing. Set retainer at 8,720.63'. Tested lines to 2000#. Filled annulus with 6 bbls. of water. Filled tubing with approximately 30 bbls. of water. (Continued on Next Page)

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED R. G. Ladd, Jr. TITLE District Drilling Superintendent DATE 9-9-82

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

Union Oil Company of California
Lisbon Unit Well No. B-814
San Juan County, Utah
9-9-82
Page 2

Pressure tested annulus to 1000#. Filled tubing with an additional 44 bbls. of water and pressure tested to 1500#. Put 1000# on annulus. Pumped 10 bbls. of fresh water at 200 psi at 1.6 bpm. Squeezed perforations, 8,772-8,781', with 150 sacks of cement. Stung out of retainer and reverse circulated 15 bbls. of slurry and 55 bbls. of water. POOH with tubing and retainer stinger. TIH with bit and casing scraper on 2-7/8" tubing to retainer at 8,701.64'. POOH with bit and tubing. Perforated Mississippian, 8,662-8,670', with 4 spf with 4" casing gun. RIH with packer and tubing. Set at 8,590.63'. Displaced with 120 bbls. of fresh water with B-1400. N.D. BOP. N.U. wellhead with X-over and 6.4', 3-1/2" OD pup sub. Swabbed well from surface to bottom of tubing. Waited 1-1/2 hours. F.L. up 800'. Swabbed dry. SION.

SITP 20 psi. F.L. 4700'. Attempted to acidize Mississippian perforations, 8,662-8,670', with 2,000 gallons of acid. Pumped 16 bbls. of acid in tubing with pressure increasing to 3000#. Flowed and swabbed acid to pit. Released rig on 9-4-82. Evaluating well.

150.5

REFERENCE POINT FOR SECTION DISTANCE =

0

START PRINT-OUT AT MEASURED DEPTH =

54

LISBON UNIT WELL B814

STA	MEAS DEPTH	TOTAL VERT DEPTH	DRIFT	AZMITH	TOTAL COORD. TOTAL SEC		
					N-S	E-W	DISTANCE
1	54.	54.	0.50	56.	0.0	0.0	0.
2	93.	93.	0.75	56.	0.24	0.35	-0.
3	125.	125.	0.50	56.	0.43	0.64	-0.
4	160.	160.	0.75	56.	0.65	0.96	-0.
5	214.	214.	0.75	56.	1.04	1.54	-0.
6	273.	273.	0.50	56.	1.40	2.08	-0.
7	334.	334.	0.25	56.	1.62	2.41	-0.
8	396.	396.	0.50	56.	1.85	2.75	-0.
9	557.	557.	0.50	56.	2.64	3.91	-0.
10	615.	615.	0.75	56.	2.99	4.43	-0.
11	714.	714.	0.75	56.	3.72	5.51	-1.
12	770.	770.	1.00	56.	4.19	6.22	-1.
13	833.	833.	1.25	56.	4.89	7.24	-1.
14	865.	865.	1.50	56.	5.32	7.88	-1.
15	938.	938.	1.75	56.	6.47	9.60	-1.
16	1004.	1000.	1.75	56.	7.53	11.17	-1.
17	1045.	1045.	2.00	55.	8.37	12.38	-1.
18	1110.	1110.	3.00	59.	9.91	14.76	-1.
19	1160.	1160.	2.00	59.	11.03	16.63	-1.
20	1289.	1289.	2.25	60.	13.46	20.75	-1.
21	1362.	1362.	2.50	60.	14.97	23.37	-1.
22	1425.	1425.	2.75	64.	16.33	25.92	-1.
23	1487.	1486.	2.75	60.	17.72	28.54	-1.
24	1550.	1549.	2.75	61.	19.21	31.17	-1.
25	1612.	1611.	3.75	60.	20.94	34.23	-1.
26	1740.	1739.	3.25	57.	25.03	40.89	-2.
27	1803.	1802.	3.25	57.	26.97	43.89	-2.
28	1856.	1855.	3.50	57.	28.67	46.51	-2.
29	1932.	1931.	3.25	56.	31.14	50.24	-2.
30	1994.	1993.	3.25	60.	33.00	53.22	-3.
31	2054.	2053.	3.50	48.	35.08	56.08	-3.
32	2117.	2115.	3.75	66.	37.25	59.42	-3.
33	2179.	2177.	3.50	58.	39.09	62.88	-3.
34	2244.	2242.	4.00	55.	41.44	66.42	-3.
35	2313.	2311.	4.00	57.	44.13	70.41	-4.
36	2370.	2368.	3.75	58.	46.20	73.66	-4.
37	2460.	2458.	3.50	51.	49.50	78.29	-5.
38	2530.	2528.	3.75	54.	52.20	81.81	-5.
39	2594.	2591.	3.75	56.	54.60	85.23	-6.
40	2642.	2639.	3.75	63.	56.19	87.94	-6.
41	2708.	2705.	4.00	53.	58.55	91.72	-6.
42	2783.	2780.	3.75	55.	61.53	95.82	-7.
43	2830.	2827.	3.75	62.	63.14	98.44	-7.
44	2898.	2895.	3.75	56.	65.43	102.26	-7.
45	2960.	2957.	4.00	56.	67.77	105.73	-7.
46	3023.	3019.	3.50	53.	70.16	109.08	-8.
47	3085.	3081.	3.50	79.	71.70	112.54	-7.
48	3162.	3158.	3.25	65.	73.10	116.85	-6.
49	3222.	3218.	3.25	63.	74.60	119.91	-6.
50	3290.	3286.	3.50	62.	76.44	123.46	-6.

Moore Business Forms, Inc.

Moore Business Forms, Inc.

51	3337.	3333.	3.50	67.	77.68	126.05	-6.
52	3409.	3405.	3.25	69.	79.27	129.98	-5.
53	3540.	3536.	3.25	67.	82.05	136.87	-4.
54	3570.	3565.	3.00	68.	82.68	138.38	-4.
55	3635.	3628.	3.00	69.	83.88	141.45	-3.
56	3699.	3694.	3.00	69.	85.12	144.67	-3.
57	3760.	3755.	3.00	69.	86.27	147.65	-2.
58	3853.	3848.	2.75	66.	88.05	151.96	-2.
59	3917.	3912.	3.00	64.	89.41	154.87	-2.
60	3981.	3976.	3.00	67.	90.80	157.92	-1.
61	4042.	4037.	3.00	73.	91.89	160.92	-1.
62	4109.	4104.	3.25	74.	92.93	164.42	0.
63	4176.	4171.	3.25	75.	93.94	168.08	1.
64	423.	4228.	3.00	74.	94.77	171.07	2.
65	4303.	4297.	3.00	79.	95.63	174.64	3.
66	4363.	4357.	3.25	72.	96.45	177.80	4.
67	4421.	4415.	3.00	68.	97.53	180.77	4.
68	4489.	4483.	3.00	60.	99.09	183.97	4.
69	4552.	4546.	3.00	59.	100.76	186.81	4.
70	4651.	4645.	3.25	46.	104.05	191.10	3.
71	4792.	4786.	4.25	34.	111.11	197.02	-2.
72	4870.	4863.	3.75	30.	115.72	199.91	-4.
73	4964.	4957.	3.50	30.	120.87	202.88	-7.
74	5047.	5040.	3.50	31.	125.24	205.45	-10.
75	5180.	5173.	3.50	25.	132.41	209.26	-15.
76	5280.	5273.	2.75	27.	137.31	211.65	-18.
77	5366.	5359.	3.50	11.	141.74	213.18	-21.
78	5472.	5464.	3.75	8.	148.35	214.28	-26.
79	5567.	5559.	4.00	8.	154.71	215.18	-32.
80	5662.	5654.	4.00	7.	161.28	216.04	-37.
81	5758.	5750.	3.25	4.	167.32	216.62	-42.
82	5885.	5876.	3.75	8.	175.03	217.43	-48.
83	5978.	5969.	3.00	1.	180.49	217.86	-53.
84	6135.	6126.	3.00	340.	188.59	216.51	-61.
85	6231.	6222.	4.50	340.	194.49	214.36	-67.
86	6280.	6271.	4.75	348.	198.29	213.27	-71.
87	6390.	6380.	5.00	345.	207.38	211.09	-80.
88	6480.	6470.	5.25	350.	215.23	209.35	-88.
89	6508.	6498.	4.25	330.	217.41	208.56	-90.
90	6539.	6529.	3.00	287.	218.63	207.02	-91.
91	6570.	6560.	2.25	195.	217.94	205.78	-90.
92	6600.	6590.	5.50	176.	215.92	205.59	-88.
93	6672.	6661.	7.25	185.	207.93	205.52	-82.
94	6732.	6721.	7.25	186.	200.39	204.79	-76.
95	6836.	6824.	7.00	186.	187.56	203.44	-65.
96	6923.	6910.	7.00	185.	177.01	202.43	-56.
97	7018.	7005.	6.75	188.	165.71	201.14	-47.
98	7111.	7097.	6.50	188.	155.08	199.65	-39.
99	7237.	7222.	7.00	190.	140.46	197.33	-27.
100	7268.	7253.	7.25	188.	136.66	196.73	-24.
101	7332.	7316.	8.50	188.	127.97	195.51	-17.
102	7397.	7381.	8.25	192.	118.65	193.86	-10.
103	7492.	7475.	8.25	191.	105.29	191.14	-0.
104	7587.	7569.	8.00	193.	92.16	188.35	10.
105	7680.	7661.	8.00	192.	79.52	185.55	20.
106	7792.	7772.	7.00	192.	65.22	182.51	31.
107	7963.	7942.	6.25	195.	46.04	177.91	45.
108	8052.	8039.	7.50	198.	35.83	174.88	52.
109	8147.	8124.	9.75	198.	22.28	170.48	61.
110	8246.	8222.	9.50	195.	6.40	165.78	73.
111	8330.	8304.	9.25	200.	-6.65	161.66	82.
112	8370.	8344.	9.00	200.	-12.61	159.49	86.
113	8415.	8388.	8.00	203.	-18.79	157.06	90.
114	8495.	8468.	7.75	210.	-28.60	152.16	96.
115	8589.	8561.	8.00	212.	-39.64	145.53	102.
116	8682.	8653.	8.00	212.	-50.62	138.67	103.
117	8780.	8750.	8.25	212.	-62.37	131.33	115.
118	8875.	8844.	6.75	210.	-72.99	124.95	121.
119	8930.	8899.	6.50	212.	-78.43	121.68	124.
120	8965.	8933.	6.75	212.	-81.86	119.54	126.

CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 2794
Casper, Wyoming

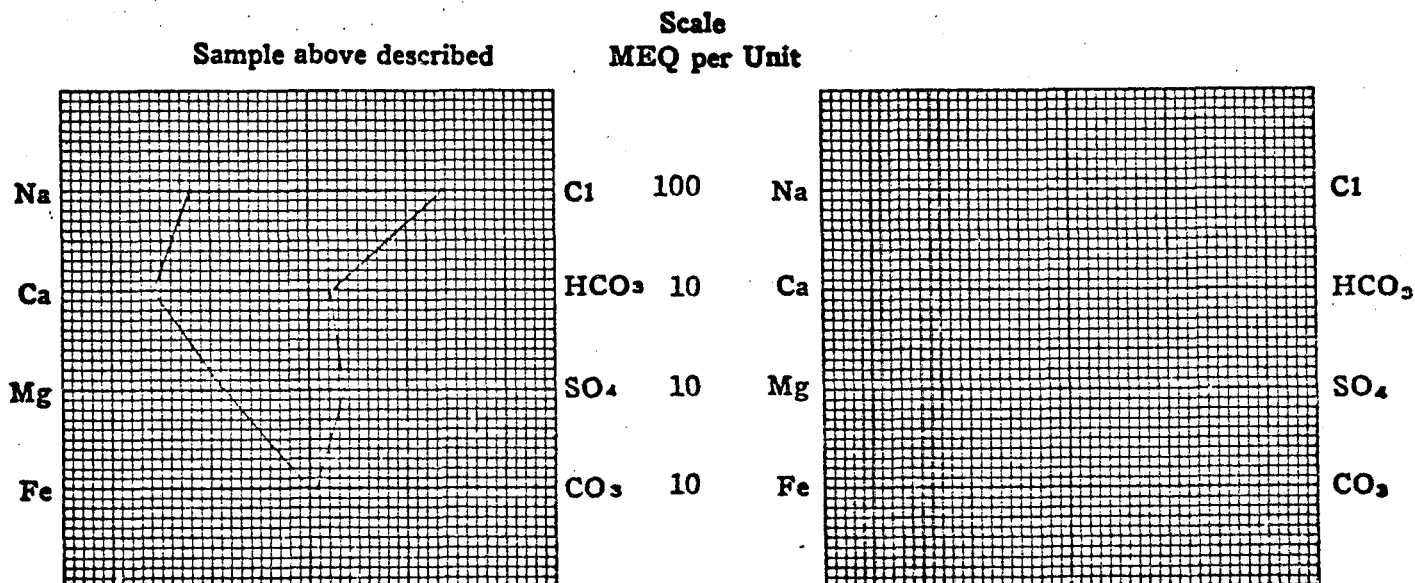
WATER ANALYSIS REPORT

OPERATOR Union Oil Co. of Calif. DATE Oct. 23, 1972 LAB NO. 8905
WELL NO. B-814 LOCATION Sec. 14-30S-24E
FIELD Lisbon FORMATION Mississippian
COUNTY San Juan INTERVAL _____
STATE Utah SAMPLE FROM Production water

REMARKS & CONCLUSIONS: Cloudy water with clear filtrate

Cations			Anions		
	mg/l	meq/l		mg/l	meq/l
Sodium	26283	1143.30	Sulfate	1720	35.78
Potassium	1800	46.08	Chloride	48500	1367.70
Lithium			Carbonate	204	6.79
Calcium	3136	156.49	Bicarbonate	1171	19.20
Magnesium	1017	83.60	Hydroxide	--	--
Iron	Present	Present	Hydrogen sulfide	Present	Present
Total Cations		1429.47	Total Anions		1429.47
Total dissolved solids, mg/l			Specific resistance @ 68°F.:		
NaCl equivalent, mg/l			Observed		
Observed pH			Calculated		
				0.11	ohm-meters
				0.10	ohm-meters

WATER ANALYSIS PATTERN



(Na value in above graphs includes Na, K, and Li)
NOTE: Mg/l=Milligrams per liter Meq/l= Milligram equivalents per liter
Sodium chloride equivalent=by Dunlap & Hawthorne calculation from components

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well <input checked="" type="checkbox"/> gas well <input type="checkbox"/> other <input type="checkbox"/>	5. LEASE SL 070008-A
2. NAME OF OPERATOR Union Oil Company of California	6. IF INDIAN, ALLOTTEE OR TRIBE NAME
3. ADDRESS OF OPERATOR P. O. Box 2620 - Casper, WY 82602-2620	7. UNIT AGREEMENT NAME Lisbon Unit
4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.) AT SURFACE: 1482' FWL & 2601' FSL AT TOP PROD. INTERVAL: Straight Hole AT TOTAL DEPTH: Straight Hole	8. FARM OR LEASE NAME Lisbon Unit
16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA	9. WELL NO. B-814
REQUEST FOR APPROVAL TO: TEST WATER SHUT-OFF <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> SHOOT OR ACIDIZE <input type="checkbox"/> REPAIR WELL <input type="checkbox"/> PULL OR ALTER CASING <input type="checkbox"/> MULTIPLE COMPLETE <input type="checkbox"/> CHANGE ZONES <input type="checkbox"/> ABANDON* <input type="checkbox"/> (other) <input type="checkbox"/>	10. FIELD OR WILDCAT NAME Lisbon
SUBSEQUENT REPORT OF: <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec. 14, T.30S., R.24E.
	12. COUNTY OR PARISH San Juan
	13. STATE Utah
	14. API NO.
	15. ELEVATIONS (SHOW DF, KDB, AND WD) 5468 GR

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(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

TD 8,965'; ETD 8,783'
9-5/8" @ 1,003'
5-1/2" @ 8,965'

(See Notice Filed 9-9-82)

Perfs: 8,862-8,875' - Sqzd.
8,854-8,858' - Sqzd.
8,843-8,848' - Sqzd.
8,802-8,808' - Sqzd.
8,789-8,793' - Sqzd.
8,772-8,781' - Sqzd.
8,662-8,670' - Open

MIRU well service unit on 9-14-82. S.D.T.P. 50#. Blew gas and some fluid to pit. R.U. the rig pump to tubing. Pumped 38 bbls. of produced water at 250 psi. Pressure up to 1000# at 1-1/2 bpm. Total of 39-1/2 bbls. down tubing. Released packer with 80,000#. Removed wellhead. Put on BOP. Circulated out backside with 130 bbls. of produced water. (Continued on Attached Sheet)

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED R. G. Ladd, Jr. TITLE District Drilling Superintendent DATE 10-29-82

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

Union Oil Company of California
Lisbon Unit Well No. B-814
Lisbon Field
San Juan County, Utah
10-29-82
Page 2

POOH with 2-7/8" tubing and packer. SDON.

T.P. 0 psi. RIH with 2-7/8" tubing, packer, non-retrievable gas lift valves, and mandrels. SDON.

Well dead. (5 bbls. fluid overnight) R.U. Dowell. Spotted 4 bbls. of 15% HCl with DAD acid over perfs. N.D. BOP. N.U. wellhead. Set packer with 14,000# compression. Pumped 2000 gallons of 28% HCl with DAD acid and MSR additives. Pressure went from 1500 psi to a vacuum when acid hit perforations, pumping at 1 bpm. Flushed with 25 bbls. of produced water at 1 bpm then 45 BW at 5 bpm, on a vacuum. R.D. Dowell. Swabbed. First run, F.L. at 3200' from surface. Recovered acid load. F.L. constant at 3200' with gas. Recovered 260 bbls. of 360 bbl. load. SDON.

T.P. 220 psi. F.L. 3200' from surface. F.L. held at 3200' from surface each swab run. Recovered 260 bbls. of formation water (gassy). SDON.

T.P. 220 psi. F.L. 3200'. Made six swab runs recovering 55 bbls. of formation water. Released rig on 9-24-82. Waiting on gas lifts.

MIRU well service unit on 10-5-82. T.P. 100 psi. C.P. 400 psi. Pumped 55 bbls. of produced water down tubing (communicated with casing side). Pumped 25 bbls. of produced water down casing. N.D. wellhead. No weight on weight indicator. N.U. BOP. POOH with 5-1/2 stands. Cracked collar on bottom of last joint. Replaced collar. RIH with 6 stands and stabbed onto tubing. SDON to fix weight indicator. POOH with tubing, gas lift valves, and packer. Ran and landed 2-7/8" tubing at 8,637.01'; gas lift valves at 3,017.12', 4,632.20', 5,964.89', 7,075.74', and 7,933.48'; and single-grip packer at 8,590.37' with 14,000# compression. N.D. BOP. N.U. wellhead. R.D. well service unit on 10-8-82. Placed on production on 10-15-82.

Production Before Workover: Shut In

Production After Workover: (10-25-82) - 0 BO + 626 BW/24 hours.
(Producing by Gas Lifting)

To: Dan Jarvis

From: Rob Fairchild

43-037-30082

3005 240E S14

Subject: Mechanical Integrity Test

Lisbon B 814 (Tom Brown/Encana)

October 23, 2004

Pages: 5 (including this page)

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To: Dan Jarvis

From: Rob Fairchild

Subject: Mechanical Integrity Test

Lisbon B 814 (Tom Brown/EnCana)

October 23, 2004

Pages: 5 (including this page)

2 copies - sent

1st copy pages 3 & 4 stuck together

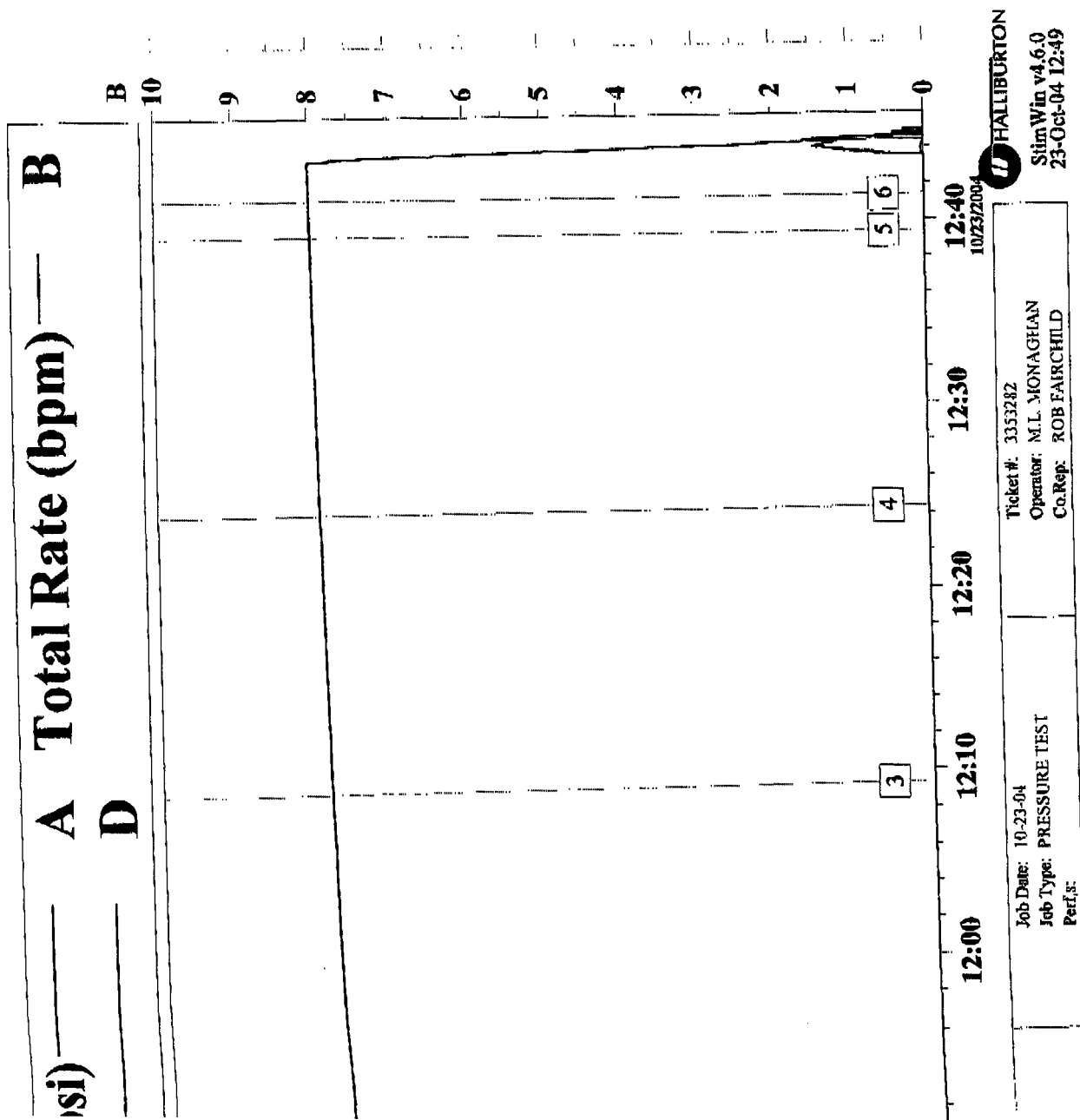
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OCT 25 2004
DIV. OF OIL, GAS & MINING

Date: 10/23
Time: 12:50
Job Date: 10/23

OPERATOR JOB LOG

Time HH:MM:SS	S/E#	Description	Pressure (psi)	Total Rate (bpm)
10:38:34	1E	Start Job	-4.86	0.00
10:52:03	2E	Test Lines	3025.64	0.00
10:53:23	1S	PUMP WATER	-3.89	1.57
11:39:24	2S	START TEST	1511.36	0.00
12:09:20	3E	30 Min. shut in	1564.79	0.00
12:24:23	4E	45 MIN. SHUT-IN	1581.30	0.00
12:39:23	5E	1 HOUR SHUT-IN	1596.84	0.00
12:41:23	6E	End Job	1598.78	0.00

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OCT 25 2004

DIV. OF OIL, GAS & MINING

To: Dan Jarvis

From: Rob Fairchild

Subject: Mechanical Integrity Test

Lisbon B 814 (Tom Brown/Encana)

October 23, 2004

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2nd same

3rd copy will be page 4 & this cover.

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DIV. OF OIL, GAS & MINING

Date: 10/23/2004

Time: 12:50:13

STAGE SUMMARY DATA

Stage No	Pressure (psi)	Total Rate (bpm)	Flow Meter Total (bbl)
1 Min	-9.71	0.00	0.28
Max	1568.67	2.87	92.53
Avg	154.29	2.09	53.49
2 Min	1511.36	0.00	92.53
Max	1598.78	0.00	92.53
Avg	1561.45	0.00	92.53
Job Min	-9.71	0.00	0.28
Max	1598.78	2.87	92.53
Avg	1107.59	0.78	66.63

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OPERATOR CHANGE WORKSHEET

ROUTING

1. GLH

2. CDW

3. FILE

Change of Operator (Well Sold)

Designation of Agent/Operator

X Change of Name**Merger**

The operator of the well(s) listed below has changed, effective:

1/1/2005**FROM: (Old Operator):**

N9885-Tom Brown, Inc.
555 17th St, Suite 1850
Denver, CO 80202

Phone: 1-(720) 876-5157

TO: (New Operator):

N2175-EnCana Oil & Gas (USA) Inc.
370 17th St, Suite 1700
Denver, CO 80202

Phone: 1-(720) 876-5068

CA No.**Unit:****LISBON****WELL(S)**

NAME	SEC	TWN	RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
LISBON C-94	04	300S	240E	4303716247	8123	Federal	OW	S
LISBON UNIT D-84	04	300S	240E	4303716250	8123	Federal	OW	P
LISBON B-84	04	300S	240E	4303730054	8123	Federal	OW	S
LISBON B-94	04	300S	240E	4303730695	8123	Federal	OW	S
LISBON C-69	09	300S	240E	4303716245	8123	Federal	OW	S
LISBON D-89	09	300S	240E	4303716251	8123	Federal	OW	P
LISBON C-99	09	300S	240E	4303730693	8123	Federal	OW	P
NW LISBON USA A-2 (D-810)	10	300S	240E	4303716471	8123	Federal	GW	P
LISBON C-910 I	10	300S	240E	4303731805	12892	Federal	D	PA
LISBON B912	12	300S	240E	4303715769	8123	Federal	OW	S
LISBON A-713A	13	300S	240E	4303716236	8123	Federal	GW	PA
LISBON B-613	13	300S	240E	4303716240	8123	Federal	OW	S
NW LISBON USA B-1 (B-614)	14	300S	240E	4303716468	8123	Federal	OW	P
LISBON B-814	14	300S	240E	4303730082	8123	Federal	OW	S
LISBON B-615	15	300S	240E	4303715123	8123	Federal	OW	P
LISBON A-715	15	300S	240E	4303716237	8123	Federal	WD	A
NW USA D-1 (B-624)	24	300S	240E	4303716516	99990	Federal	WD	A

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 1/27/20052. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 1/27/20053. The new company was checked on the **Department of Commerce, Division of Corporations Database** on: 2/23/20054. Is the new operator registered in the State of Utah: YES Business Number: 5053175-01435. If **NO**, the operator was contacted on:6a. (R649-9-2) Waste Management Plan has been received on: In PLACE6b. Inspections of LA PA state/fee well sites complete on: n/a

7. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BLM not yet BIA

8. **Federal and Indian Units:**

The BLM or BIA has approved the successor of unit operator for wells listed on: n/a

9. **Federal and Indian Communization Agreements ("CA"):**

The BLM or BIA has approved the operator for all wells listed within a CA on: n/a

10. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject**, for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: n/a

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database** on: 2/24/2005
2. Changes have been entered on the **Monthly Operator Change Spread Sheet** on: 2/24/2005
3. Bond information entered in RBDMS on: 2/24/2005
4. Fee/State wells attached to bond in RBDMS on: 2/24/2005
5. Injection Projects to new operator in RBDMS on: 2/24/2005
6. Receipt of Acceptance of Drilling Procedures for APD/New on: n/a

FEDERAL WELL(S) BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: UT1005

INDIAN WELL(S) BOND VERIFICATION:

1. Indian well(s) covered by Bond Number: n/a

FEE & STATE WELL(S) BOND VERIFICATION:

1. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number RLB0007875
2. The **FORMER** operator has requested a release of liability from their bond on: n/a
The Division sent response by letter on: n/a

LEASE INTEREST OWNER NOTIFICATION:

3. (R649-2-10) The **FORMER** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: n/a

COMMENTS:

Merger and rider of bond from Tom Brown, Inc.

State of Delaware
Secretary of State
Division of Corporations
Delivered 06:15 PM 12/22/2004
FILED 06:15 PM 12/22/2004
SRV 040934710 - 2137895 FILE

**STATE OF DELAWARE
CERTIFICATE OF MERGER OF
DOMESTIC CORPORATIONS**

Pursuant to Title 8, Section 251(c) of the Delaware General Corporation Law, the undersigned corporation executed the following Certificate of Merger:

FIRST: The name of the surviving corporation is EnCana Oil & Gas (USA) Inc., and the names and jurisdictions of the corporations being merged into this surviving corporation are as follows:

<u>Name</u>	<u>Jurisdiction of Incorporation</u>
Tom Brown, Inc.	Delaware corporation
TBI Pipeline Company	Delaware corporation
TBI West Virginia, Inc.	Delaware corporation

SECOND: The Agreement and Plan of Merger has been approved, adopted, certified, executed and acknowledged by each of the constituent corporations.

THIRD: The name of the surviving corporation is EnCana Oil & Gas (USA) Inc., a Delaware corporation.

FOURTH: The Certificate of Incorporation of the surviving corporation shall be its Certificate of Incorporation.

FIFTH: The merger is to become effective on January 1, 2005.

SIXTH: The Agreement and Plan of Merger is on file at 950 17th Street, Suite 2600, Denver, Colorado 80202, the place of business of the surviving corporation.

SEVENTH: A copy of the Agreement and Plan of Merger will be furnished by the surviving corporation on request, without cost, to any stockholder of the constituent corporations.

IN WITNESS WHEREOF, said surviving corporation has caused this certificate to be signed by an authorized officer, the 17th day of December, A.D., 2004.

ENCANA OIL & GAS (USA) INC.

By: Mary A. Viviano
Mary A. Viviano, Secretary

Delaware

PAGE 1

The First State

I, HARRIET SMITH WINDSOR, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF MERGER, WHICH MERGES:

"TBI PIPELINE COMPANY", A DELAWARE CORPORATION,

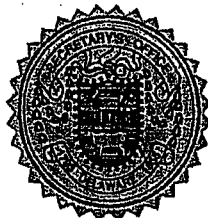
"TBI WEST VIRGINIA, INC.", A DELAWARE CORPORATION,

"TOM BROWN, INC.", A DELAWARE CORPORATION,

WITH AND INTO "ENCANA OIL & GAS (USA) INC." UNDER THE NAME OF "ENCANA OIL & GAS (USA) INC.", A CORPORATION ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE, AS RECEIVED AND FILED IN THIS OFFICE THE TWENTY-SECOND DAY OF DECEMBER, A.D. 2004, AT 6:15 O'CLOCK P.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF THE AFORESAID CERTIFICATE OF MERGER IS THE FIRST DAY OF JANUARY, A.D. 2005.

A FILED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS.



2137895 8100M

040934710

Harriet Smith Windsor

Harriet Smith Windsor, Secretary of State

AUTHENTICATION: 3584585

DATE: 12-29-04

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

5. Lease Designation and Serial No.

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells.
 Use APPLICATION FOR PERMIT TO DRILL OR DEEPEN form for such proposals.

6. If Indian, Allotte or Tribe Name

7. Unit Agreement Name

8. Well Name and Number

9. API Well Number

10. Field and Pool, or Exploratory Area

1. Type of Well

☐ Oil Well ☐ Gas Well ☐ Other

 2. Name of Operator: EnCana Oil & Gas (USA) Inc.
(successor in interest of Tom Brown, Inc. effective 1/1/05)

 Contact: Jane Washburn
 Phone: 720/876-5431

3. Address and Telephone No.

370 Seventeenth Street, Suite 1700, Denver, CO 80202

4. Location of Well

Footages:

SEE ATTACHED LIST OF WELLS

County:

State:

QQ, Sec T,R,M:

11. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA
NOTICE OF INTENT
 (Submit in Duplicate)

- | | |
|--|---|
| <input type="checkbox"/> Abandon | <input type="checkbox"/> New Construction |
| <input type="checkbox"/> Repair Casing | <input type="checkbox"/> Pull or Alter Casing |
| <input type="checkbox"/> Change Plans | <input type="checkbox"/> Recomplete |
| <input type="checkbox"/> Convert to Injection | <input type="checkbox"/> Reperforate |
| <input type="checkbox"/> Fracture Treat or Acidize | <input type="checkbox"/> Vent or Flare |
| <input type="checkbox"/> Multiple Completion | <input type="checkbox"/> Water Shut-Off |
| <input type="checkbox"/> Other | |

Approximate date work will start _____

SUBSEQUENT REPORT
 (Submit Original Form Only)

- | | |
|--|---|
| <input type="checkbox"/> Abandon* | <input type="checkbox"/> New Construction |
| <input type="checkbox"/> Repair Casing | <input type="checkbox"/> Pull or Alter Casing |
| <input type="checkbox"/> Change Plans | <input type="checkbox"/> Recomplete |
| <input type="checkbox"/> Convert to Injection | <input type="checkbox"/> Reperforate |
| <input type="checkbox"/> Fracture Treat or Acidize | <input type="checkbox"/> Vent or Flare |
| <input type="checkbox"/> Other | <input type="checkbox"/> Water Shut-Off |

Change of Operator

Date of work completion _____

 Report results of Multiple Completions and Recompletions to different reservoirs
 on WELL COMPLETION OR RECOMPLETION REPORT AND LOG form.

* Must be accompanied by a cement verification report.

12. Describe Proposed or completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof.

If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones.
 Attach the Bond under which the work will be performed or provide the Bond No. on file with the BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, A form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

N9885

N2175

The merger of Tom Brown, Inc. with EnCana Oil & Gas (USA) Inc. was effective January 1, 2005.

 It is, therefore, requested that the Operator of all properties on the attached list be changed
 from Tom Brown, Inc. to EnCana Oil & Gas (USA) Inc.

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JAN 2 / 2005

DIV. OF OIL, GAS & MINING

13. Name (Printed/Typed) Jane Washburn		Title Operations Engineering Tech
Signature <i>Jane Washburn</i>		Date 01/24/2005

(This space for State use only)

APPROVED 2/24/05

ER

 Division of Oil, Gas and Mining
 Earlene Russell, Engineering Technician

tom brown to encana.xls

well_name	sec	twsp	mg	api	entity	lease	well	stat	flag	unit_name	lease_num	qtr_qtr	td_md	d_apd	op_no
BIG INDIAN 36-42	36	290S	240E	4303731827		State	GW	APD			ST-UT-37067	SESW		5750	N9885
FEDERAL 14-18	18	250S	060E	4301530060	436	Federal	NA	PA			UTU-69447	SWSW			N9885
NW USA D-1 (B-624)	24	300S	240E	4303716516	99990	Federal	WD	A			UTU-070034	NENW			N9885
FEDERAL 15-25	25	290S	230E	4303730317	4776	Federal	GW	S			UTU-986	SWSE			N9885
BIG INDIAN 35-24	35	290S	240E	4303731829	14409	Federal	GW	DRL	C		UTU-077077	SENE			N9885
BIG INDIAN 27-34	27	290S	240E	4303731828		Federal	GW	APD	C		N9885				
BIG INDIAN UNIT 1	33	290S	240E	4303716219	8122	Federal	OW	S		BIG INDIAN	UTSL-067131	SENE			N9885
BIG INDIAN 4	14	300S	250E	4303716221	8124	Federal	GW	TA		BIG INDIAN	UTSL-089097	SWSW			N9885
BIG INDIAN 34-11	34	290S	240E	4303731818	14004	Federal	D	PA	C	BIG INDIAN	UTU-014905	NWNW			N9885
BULL HORN U 10-43	10	300S	250E	4303731831	14393	Federal	GW	DRL	C	BULL HORN	UT-73190	SWSE			N9885
LISBON B-615	15	300S	240E	4303715123	8123	Federal	OW	P		LISBON	UTU-09179	NENW			N9885
LISBON FED 2-21F	21	300S	250E	4303715768	410	Federal	GW	S		LISBON	UTU-094674	SENE			N9885
LISBON B912	12	300S	240E	4303715769	8123	Federal	OW	S		LISBON	UTU-06922	SESW			N9885
LISBON A-713A	13	300S	240E	4303716236	8123	Federal	GW	PA		LISBON	UTSL-070034	SWNW			N9885
LISBON A-715	15	300S	240E	4303716237	8123	Federal	WD	A		LISBON	UTU-020691A	SWNW			N9885
LISBON B-613	13	300S	240E	4303716240	8123	Federal	OW	S		LISBON	UTSL-070034	NENW			N9885
LISBON C-69	09	300S	240E	4303716245	8123	Federal	OW	S		LISBON	UTU-09179	NWNE			N9885
LISBON C-94	04	300S	240E	4303716247	8123	Federal	OW	S		LISBON	UTU-66582	SWSE			N9885
LISBON UNIT D-84	04	300S	240E	4303716250	8123	Federal	OW	P		LISBON	UTU-015445	NESE			N9885
LISBON D-89	09	300S	240E	4303716251	8123	Federal	OW	P		LISBON	UTU-015445	NESE			N9885
NW LISBON USA B-1 (B-614)	14	300S	240E	4303716468	8123	Federal	OW	P		LISBON	UTSL-070008A	NENW			N9885
NW LISBON USA A-2 (D-810)	10	300S	240E	4303716471	8123	Federal	GW	P		LISBON	UTU-14903	NESE			N9885
LISBON B-84	04	300S	240E	4303730054	8123	Federal	OW	S		LISBON	UTU-09179	NESW			N9885
LISBON B-814	14	300S	240E	4303730082	8123	Federal	OW	S		LISBON	UTSL-070008A	NESW			N9885
LISBON C-99	09	300S	240E	4303730693	8123	Federal	OW	P		LISBON	UTU-09179	SWSE			N9885
LISBON B-94	04	300S	240E	4303730695	8123	Federal	OW	S		LISBON	UTU-015445	SESW			N9885
LISBON C-910 I	10	300S	240E	4303731805	12892	Federal	D	PA		LISBON	UTU-0141903	SWSE			N9885
LISBON D-616	16	300S	240E	4303715049	8123	State	OW	P		LISBON	ML-13692	NENE	9120	9120	N9885
LISBON B-616	16	300S	240E	4303716242	8123	State	OW	S		LISBON	ML-8366	NESW	8689	8689	N9885
BELCO ST 4 (LISBON B-816)	16	300S	240E	4303716244	8123	State	WD	A		LISBON	ML-8366	NESW	8730	9100	N9885
LISBON UNIT D-716	16	300S	240E	4303731034	8123	State	OW	P		LISBON	ML-13692	SENE	8794	8775	N9885
LISBON U B-610	10	300S	240E	4303716469	8123	Federal	OW	P		LISBON (MCCRACKEN)	UTU-014903	NENW			N9885
LISBON U B-610	10	300S	240E	4303716469	9740	Federal	OW	P		LISBON (MCCRACKEN)	UTU-014903	NENW			N9885
LISBON U D-610	10	300S	240E	4303730694	9740	Federal	GW	P		LISBON (MCCRACKEN)	UTU-014903	NENE			N9885
LISBON UNIT A-911	11	300S	240E	4303731014	9740	Federal	GW	P		LISBON (MCCRACKEN)	UTSL-070008A	SWSW			N9885
LISBON C-910	10	300S	240E	4303731323	9740	Federal	OW	P		LISBON (MCCRACKEN)	UTU-014903	SWSE			N9885
LISBON B-614A	14	300S	240E	4303731351	9740	Federal	OW	TA		LISBON (MCCRACKEN)	UTSL-070008A	NENW			N9885
LISBON B-810	10	300S	240E	4303731433	9740	Federal	OW	P		LISBON (MCCRACKEN)	UTU-014903	NESW			N9885
LISBON (MCCRACKEN) D-615	15	300S	240E	4303731817		Federal	OW	LA		LISBON (MCCRACKEN)	N9885				
LISBON (MCCRACKEN) A-610	10	300S	240E	4303731821		Federal	OW	LA		LISBON (MCCRACKEN)	N9885				

WELLBORE DIAGRAM

1355' FSL & 1275' FEL
(Dir. Svy on btm of hole north 45 deg & 26 min.
west, 1032.08' from surface location)

KB 6660'

GL 6649'

TOC @ 30'

1 jt 16" OD csg @ 35'.
Cement w/60 sx Neat cmt.

Set 31 jts 10-3/4" OD 40.5#
csg @ 1006'. Cmt w/ 475 sx
50/50 Pozmix & 160 sx Neat cmt.

Cmt retainer @ 900'

Cmt sqz perms 1000-01', 4 spf

Cmt retainer @ 2400'

Cmt sqz perms 2500-01', 4 spf

Cmt retainer @ 4300'
Drilled whipstock hole
from 4435 - 9193'

Cmt sqz perms 4000-01', 4 spf

Cmt plug from 4435-4600'

Cmt plug from 5700-6050'

Cmt plug from 8850-9120'

8860-8862'
8868-8872'
8896-8902'
8907-8910'

Top of Mississippian @ 9182'
(TVD 9007' - 2347')

Original TD 9251'

Op: Tom Brown, Inc.

Well Name: Lisbon C-814

Lease Number: USA SL-070008-A

Location: NESE Sec. 14-T30S-R24E

Field: Lisbon

County, State: San Juan, UT

API Number: 43-037-16248

Diagram Date: 05/15/2002

WELL HISTORY

Spud Date: 2/16/1961
Whipstock Set: 4/1/1961
TD Reached: 5/20/1961
Completion Date: 6/18/1961
Plugged & Abandoned: 1/3/1989

IP: 24 hr test, 22/64" ck, 351 BO, 0 BW,
446 MCFD, GOR 1271, TP 400#.

3/61: Ran 3 DSTs and cut 3 cores.

DESCRIPTION OF FISH IN HOLE:

	Length
Reda pump & motor	47.20'
Sub	4.00'
2 jts 2-3/8" tubing	61.46'
Valve	.60'
1 jt 2-3/8" tubing	31.56'
Circ. Valve	.60'
3 jts 2-3/8" tubing	87.00'
Fish Length	232.42'

P&A'd 1/3/1989:

Plug #1: 9056-8200' w/ 175 sx cmt. Perf'd from 4000-01', 2500-01' and 1000-01' w/ 4 jsfp, 4" gun.
Plug #2: Set cmt ret @ 4300'. Pumped 100 sx through perms @ 4000'.
Plug #3: Set cmt ret @ 2400', sqz'd 100 sx cmt through perms @ 2500'.
Plug #4: Set cmt ret @ 900', sqz'd 300 sx cmt through perms @ 1000'.
Got cmt to surf between 7" and 10-3/4" surface pipe. Left 100' of cement on top of retainer.
Plug #5: Pumped 50 sx cmt in 7" casing. Tagged cmt plug w/ tubing at 30'. Pooh w/tubing.

Fish in hole @ ± 9056'
221' Reda pump assembly on 2-3/8" tubing
with ± 324' of 1.21" cable on top

5/14: 294 jts 7" OD csg @ 9191', cmt'd w/ 700 sx
50-50 Pozmix + 50 sx Neat cmt w/2% gel.

6-1/8" open hole perms
from 9191' - 9305'

TD 9305'

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Date: 4/30/2002
Time: 10:39 AM

PI/Dwights PLUS on CD Well Summary Report

C-814

General Information			
State	:	UTAH	
County	:	SAN JUAN	
Field	:	LISBON	
Operator Name	:	PURE OIL CO THE	
Lease Name	:	NW LISBON-B	
Well Number	:	2	
API Number	:	43037162480000	
Regulatory API	:		
Init Lahee Class	:	D	
Final Lahee Class	:	D	
Permit Number	:		
Geologic Province	:	PARADOX BASIN	
Formation at TD	:	359MSSP	
Oldest Age Pen	:	359	
Township	:	30 S	
Range	:	24 E	
Base Meridian	:	SALT LAKE	
Final Status	:	D&A-O	
Drill Total Depth	:	9251	
Log Total Depth	:		
Spud Date	:	FEB 16, 1961	
Comp Date	:	APR 04, 1961	
Hole Direction	:	VERTICAL	
Reference Elevation	:	6658	KB
Ground Elevation	:	6649	
KB Elevation	:	6658	
Section	:	14	SEC
Spot	:		NE SE

Additional Location Information			
Footage Location	:	1355 FSL 1275 FEL	CONGRESS SECTION
Latitude	:	38.1745000	
Longitude	:	-109.2517400	
Lat./Long. Source	:	US	
Latitude (Bot)	:		
Longitude (Bot)	:		

Formations

Form Code	Form Name	Top Depth	Top TVD	Base Depth	Base TVD	Source	Lithology
409HRMS	HERMOSA	2360				SPL	
409PRDX	PARADOX /SH/	4040				SPL	
409PRDX	PARADOX /SH/	4300				SPL	
359MSSP	MISSISSIPPIAN	9182				LOG	
359MSSP	MISSISSIPPIAN	9187				SPL	
000SALT	SALT				9042	LOG	

Core Data

Formation	Top Depth	Base Depth	Recovered	Type	Show
000SALT	9075	9127	49.5 FT	CONV	OSTN
000SALT	9127	9182	55 FT	CONV	BLDO
359MSSP	9182	9239	57 FT	CONV	BLDO

Formation Tests

Test	Type	Top Depth	Base Depth	Top Form	Top Choke	Bottom Choke	Show
001	DST	9092	9239	000SALT			
002	DST	9096	9216	000SALT			
003	DST	9096	9176	000SALT			

Pressure and Time

Test	Hydro		Init Flow		Final Flow		Shut-in		Open Time		Shut-in Time	
	Init	Final	Init	Final	Init	Final	Init	Final	Init	Final	Init	Final
001	5060	5012	420	1585			3028	3028	60		60	60
002	4975	4975			100	1235	2950	2950	5	77	45	45
003	5060	5010			285	885	2980	2980	5	60	30	30
Pipe Recovery												

Pipe Recovery

Test	Amount	Unit	Desc	Rec Type	Rec Method
001	3200	FT	XW		PIPE
001	300	FT	M		PIPE

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002	2505 FT	WCM	PIPE
002	2750 FT	XW	PIPE
003	300 FT	SWCM	PIPE
003	1600 FT	XW	PIPE

Casing Data

Size	Base Depth	Cement Unit
16 IN	35	
10 3/4 IN	1006	635 SACK

Dwights Energydata Narrative

Accumulated through 1997

IP: 351 BOPD, 446 MCFG/D *2 BO 1.4 BW 351 BOPD grav 52.6, 446 MCFGPD
Dst: #1 9092- 9239
Dst: op 60 si 60. si 60. IF op w/very wk blo decr to 0 in 60 min. Rec 3200
Dst: ft SW 300 ft DM. HP 5060-5012 FP 420-1582 SIP 3028-3028 -
Dst: #2 9096- 9216
Dst: op 5 si 45 op 77 si 45. IF op w/wk blo; FF op w/wk blo thruout. NGTS.
Dst: Rec 250 ft SWCM 2750 ft SW. HP 4975-4975 FP 100-1235 SIP 2950-2950
Dst: #3 9096- 9176
Dst: op 5 si 30 op 60 si 30. IF op w/wk blo & remd thruout. NGTS. Rec 300
Dst: ftSWCM 1600 ft SW w/sulp Wtr. HP 5060- 5010 FP 285-885 SIP 2980-2980.
Dst: #4 9190- 9305
Dst: op 600 si 30 op 55. IF op w/GTS in 15 min O in 50 min.
Cores: #1 9075- 9127
Cores: cut & rec 49 ft
Cores: #2 9127- 9102
Cores: cut & rec 55 ft
Cores: #3 9182- 9239
Cores: cut & rec 57 ft
Dwights number: R8428190

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Date: 4/30/2002

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PI/Dwights PLUS on CD Well Summary Report

General Information			
State	: UTAH	Final Status	: OIL
County	: SAN JUAN	Drill Total Depth	: 9305
Field	: LISBON	Log Total Depth	:
Operator Name	: PURE OIL CO THE		
Lease Name	: NW LISBON-B	Spud Date	: APR 04, 1961
Well Number	: 2	Comp Date	: JUN 18, 1961
API Number	: 43037162480001		
Regulatory API	:	Hole Direction	: VERTICAL
Init Lahee Class	: D R	Reference Elevation	: 6658 KB
Final Lahee Class	: DO	Ground Elevation	: 6649
Permit Number	:	KB Elevation	: 6658
Geologic Province	: PARADOX BASIN		
Formation at TD	: 359MSSP		
Oldest Age Pen	: 359		
Producing Formation	: 359MSSP		
Township	: 30 S		
Range	: 24 E	Section	: 14 SEC
Base Meridian	: SALT LAKE	Spot	: NE SE

Additional Location Information			
Footage Location	: 1355 FSL 1275 FEL CONGRESS SECTION		
Latitude	: 38.1745000	Latitude (Bot)	:
Longitude	: -109.2517400	Longitude (Bot)	:
Lat./Long. Source	: US		

Initial Potential Tests											
Test	Top Form	Base Form	Top Depth	Base Depth	Choke	GOR	Oil Grav	Prod Method	Test Method		
001	359MSSP	359MSSP	9191	9305	22/64	1271	52.6	OPENHOLE	FLOWING		
IP Volume											
Test	Amount	Oil Unit	Desc	Amount	Cond Unit	Desc	Amount	Gas Unit	Desc	Amount	Wtr Unit
001	351	BPD									
IP Pressure											
Test	FTP	SITP	FCP	SICP							
001	400										
IP Perforation											
Test	Top	Base	Type	Method	Top Form	Base Form	Status	Count	Density	Per	
001	9191	9305		OPENHOLE	359MSSP	359MSSP					

Production Tests											
Test	Top Form	Base Form	Top Depth	Base Depth	Choke	GOR	Oil Grav	Prod Method	Test Method		
001	359MSSP	359MSSP	9191	9305	18/64			OPENHOLE	FLOWING		
002	359MSSP	359MSSP	9191	9305	23/64			OPENHOLE	FLOWING		
003	359MSSP	359MSSP	9191	9305	22/64			OPENHOLE	FLOWING		
Production Volume											
Test	Amount	Oil Unit	Desc	Amount	Cond Unit	Desc	Amount	Gas Unit	Desc	Amount	Wtr Unit
001	240	BBL									
002	336	BBL									
003	347	BBL									
Production Pressure											
Test	FTP	SITP	FCP	SICP							
001	550										
002	400										

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003 465

Test	Top	Base	Production Perforation		Base Form	Status	Count	Density	Per
			Type	Method	Top Form				
001	9191	9305		OPENHOLE	359MSSP				
002	9191	9305		OPENHOLE	359MSSP				
003	9191	9305		OPENHOLE	359MSSP				

Formations

Form Code	Form Name
359MSSP	MISSISSIPPIAN
359MSSP	MISSISSIPPIAN
000SALT	SALT

Top Depth	Top TVD	Base Depth	Base TVD	Source LOG	Lithology
9182					
9187					
		9042		SPL LOG	

Formation Tests

Test	Type	Top Depth	Base Depth	Top Form	Top Choke
001	DST	9190	9305	359MSSP	32/64

Pressure and Time

Test	Init	Final	Init Flow		Final Flow	
			Init	Final	Init	Final
001	4905	4865	900	1005		

Test	Amount	Unit	Material to Surface	
			Fluid Type	Time
001			GAS	15
001			OIL	50

Bottom Choke	Show S

Shut-in		Open Time		Shut-in Time	
Init	Final	Init	Final	Init	Final
2915	2875	600		30	55

Casing Data

Size	Base Depth	Cement Unit
7 IN	9191	750 SACK

Tubing Data

Size	Base Depth
2 7/8 IN	9080

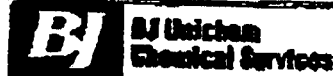
Whipstock

Depth	Narrative
4435	

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Analytical Laboratory Report for:
Tom Brown



UNICHEM Representative: Clyde Willis

Production Water Analysis

Listed below please find water analysis report from: Lisbon Unit, B-624

*water injected
into SWD B-624*

Lab Test No: 2002125772 Sample Date: 07/03/2002
Specific Gravity: 1.051
TDS: 76671
pH: 6.29

Cations:	mg/L	as:
Calcium	5740	(Ca ⁺⁺)
Magnesium	682	(Mg ⁺⁺)
Sodium	22964	(Na ⁺)
Iron	4.80	(Fe ⁺⁺)
Barium	16.20	(Ba ⁺⁺)
Strontium	257.00	(Sr ⁺⁺)
Manganese	5.20	(Mn ⁺⁺)
Anions:	mg/L	as:
Bicarbonate	1452	(HCO ₃ ⁻)
Sulfate	1050	(SO ₄ ⁻)
Chloride	44500	(Cl ⁻)
Gases:		
Carbon Dioxide	229	(CO ₂)
Hydrogen Sulfide	97	(H ₂ S)

Tom Brown

Lab Test No: 2002125772



DownHole SAT™ Scale Prediction @ 90 deg. F

Mineral Scale	Saturation Index	Momentary Excess (lbs/1000 bbls)
Calcite (CaCO ₃)	6.27	.122
Aragonite (CaCO ₃)	5.35	.118
Witherite (BaCO ₃)	.00434	-19.23
Strontianite (SrCO ₃)	.484	-.228
Magnesite (MgCO ₃)	.806	-.0294
Anhydrite (CaSO ₄)	1.01	.972
Gypsum (CaSO ₄ *2H ₂ O)	1.28	65.58
Barite (BaSO ₄)	47.25	9.38
Celestite (SrSO ₄)	.59	-68.76
Silica (SiO ₂)	0	-44.74
Brucite (Mg(OH) ₂)	< 0.001	-.494
Magnesium silicate	0	-114.13
Iron hydroxide (Fe(OH) ₃)	< 0.001	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0	> 0.001
Siderite (FeCO ₃)	7.31	.144
Halite (NaCl)	.0139	-168331
Thenardite (Na ₂ SO ₄)	< 0.001	-75381
Iron sulfide (FeS)	13.4	2.57

Interpretation of DHSat Results:

The Saturation Index is calculated for each mineral species independently and is a measure of the degree of supersaturation (driving force for precipitation) under the conditions modeled. This value ranges from 0 to infinity with 1.0 representing a condition of equilibrium where scale will neither dissolve nor precipitate. Values less than 1.0 are undersaturated and values greater than 1.0 are supersaturated. The scale is logarithmic, i.e., a Saturation Index of 3 is 10 times more saturated than a value of 2.

The Momentary excess is a measure of how much scale would have to precipitate to bring the system back to a non-scaling condition. This value ranges from negative (dissolving) infinity to positive (precipitating) infinity. The Momentary Excess represents the amount of scale possible while the Saturation Level represents the probability that scale will form.

Analytical Laboratory Report for:
Tom Brown



UNICHEM Representative: Clyde Willis

Production Water Analysis

Listed below please find water analysis report from: Lisbon Unit, B-912

Lab Test No: 2002125773 Sample Date: 07/03/2002
Specific Gravity: 1.072
TDS: 110032
pH: 5.13

water produced
from Mississippian
Reservoir

Cations:	mg/L	as:
Calcium	4165	(Ca ⁺⁺)
Magnesium	871	(Mg ⁺⁺)
Sodium	37473	(Na ⁺)
Iron	3.10	(Fe ⁺⁺)
Barium	0.70	(Ba ⁺⁺)
Strontium	117.00	(Sr ⁺⁺)
Manganese	0.39	(Mn ⁺⁺)
Anions:	mg/L	as:
Bicarbonate	952	(HCO ₃ ⁻)
Sulfate	1650	(SO ₄ ⁻²)
Chloride	64800	(Cl ⁻)
Gases:		
Carbon Dioxide	185	(CO ₂)
Hydrogen Sulfide	202	(H ₂ S)

Tom Brown

Lab Test No: 2002125773



DownHole SAT™ Scale Prediction @ 90 deg. F

Mineral Scale	Saturation Index	Momentary Excess (lbs/1000 bbls)
Calcite (CaCO ₃)	2.08	.0319
Aragonite (CaCO ₃)	1.76	.0267
Witherite (BaCO ₃)	< 0.001	-24.81
Strontianite (SrCO ₃)	.0802	-1.03
Magnesite (MgCO ₃)	.487	-.0551
Anhydrite (CaSO ₄)	1.16	44.45
Gypsum (CaSO ₄ *2H ₂ O)	1.41	138.68
Barite (BaSO ₄)	2.52	.256
Celestite (SrSO ₄)	.345	-113.37
Silica (SiO ₂)	0	-42.21
Brucite (Mg(OH) ₂)	< 0.001	-.411
Magnesium silicate	0	-111.8
Iron hydroxide (Fe(OH) ₃)	< 0.001	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0	> -0.001
Siderite (FeCO ₃)	1.75	.0302
Halite (NaCl)	.0349	-149771
Thenardite (Na ₂ SO ₄)	< 0.001	-79346
Iron sulfide (FeS)	8.03	1.64

Interpretation of DHSat Results:

The Saturation Index is calculated for each mineral species independently and is a measure of the degree of supersaturation (driving force for precipitation) under the conditions modeled. This value ranges from 0 to infinity with 1.0 representing a condition of equilibrium where scale will neither dissolve nor precipitate. Values less than 1.0 are undersaturated and values greater than 1.0 are supersaturated. The scale is logarithmic, i.e. a Saturation Index of 3 is 10 times more saturated than a value of 2.

The Momentary excess is a measure of how much scale would have to precipitate to bring the system back to a non-scaling condition. This value ranges from negative (dissolving) infinity to positive (precipitating) infinity. The Momentary Excess represents the amount of scale possible while the Saturation Level represents the probability that scale will form.

DownHole SAT(tm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) TB B-624 (50%)

2) TB B-912 (50%)

Report Date: 07-08-2002

SATURATION LEVEL		MOMENTARY EXCESS (Lbs/1000 Barrels)	
Calcite (CaCO ₃)	3.73	Calcite (CaCO ₃)	0.0630
Aragonite (CaCO ₃)	3.18	Aragonite (CaCO ₃)	0.0590
Witherite (BaCO ₃)	0.00135	Witherite (BaCO ₃)	-20.97
Strontianite (SrCO ₃)	0.210	Strontianite (SrCO ₃)	-0.477
Magnesite (MgCO ₃)	0.654	Magnesite (MgCO ₃)	-0.0384
Anhydrite (CaSO ₄)	1.22	Anhydrite (CaSO ₄)	45.56
Gypsum (CaSO ₄ *2H ₂ O)	1.50	Gypsum (CaSO ₄ *2H ₂ O)	119.13
Barite (BaSO ₄)	29.88	Barite (BaSO ₄)	4.83
Celestite (SrSO ₄)	0.520	Celestite (SrSO ₄)	-78.84
Silica (SiO ₂)	0.00	Silica (SiO ₂)	-40.47
Brucite (Mg(OH) ₂)	< 0.001	Brucite (Mg(OH) ₂)	-0.407
Magnesium silicate	0.00	Magnesium silicate	-105.89
Iron hydroxide (Fe(OH) ₃)	< 0.001	Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00	Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	3.63	Siderite (FeCO ₃)	0.0715
Halite (NaCl)	0.0263	Halite (NaCl)	-146838
Thenardite (Na ₂ SO ₄)	< 0.001	Thenardite (Na ₂ SO ₄)	-73629
Iron sulfide (FeS)	9.47	Iron sulfide (FeS)	2.10

SIMPLE INDICES

Langelier	0.981
Ryznar	4.18
Puckorius	0.931
Larson-Skold Index	84.26
Stiff Davis Index	0.346
Oddo-Tomson	-0.0394

OPERATING CONDITIONS

Temperature (°F)	90.00
Time (secs)	1.00

UNICHEM - Midland Analytical Laboratory
P.O. Box 61427, Midland, Texas 79711

DownHole SAT (tm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) TB B-624 (75%)

2) TB B-912 (25%)

Report Date: 07-08-2002

SATURATION LEVEL		MOMENTARY EXCESS (Lbs/1000 Barrels)	
Calcite (CaCO ₃)	4.86	Calcite (CaCO ₃)	0.0849
Aragonite (CaCO ₃)	4.14	Aragonite (CaCO ₃)	0.0811
Witherite (BaCO ₃)	0.00252	Witherite (BaCO ₃)	-19.70
Strontianite (SrCO ₃)	0.319	Strontianite (SrCO ₃)	-0.335
Magnesite (MgCO ₃)	0.732	Magnesite (MgCO ₃)	-0.0329
Anhydrite (CaSO ₄)	1.15	Anhydrite (CaSO ₄)	30.42
Gypsum (CaSO ₄ *2H ₂ O)	1.44	Gypsum (CaSO ₄ *2H ₂ O)	97.69
Barite (BaSO ₄)	40.70	Barite (BaSO ₄)	7.12
Celestite (SrSO ₄)	0.577	Celestite (SrSO ₄)	-69.07
Silica (SiO ₂)	0.00	Silica (SiO ₂)	-41.35
Brucite (Mg(OH) ₂)	< 0.001	Brucite (Mg(OH) ₂)	-0.431
Magnesium silicate	0.00	Magnesium silicate	-107.11
Iron hydroxide (Fe(OH) ₃)	< 0.001	Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00	Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	5.14	Siderite (FeCO ₃)	0.0988
Halite (NaCl)	0.0204	Halite (NaCl)	-152565
Thenardite (Na ₂ SO ₄)	< 0.001	Thenardite (Na ₂ SO ₄)	-72991
Iron sulfide (FeS)	10.76	Iron sulfide (FeS)	2.33

SIMPLE INDICES

Langelier	1.09
Ryznar	4.01
Puckorius	0.743
Larson-Skold Index	68.40
Stiff Davis Index	0.450
Oddo-Tomson	0.0959

OPERATING CONDITIONS

Temperature (°F)	90.00
Time (secs)	1.00

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DownHole SAT (tm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) TB B-624 (25%)

2) TB B-912 (75%)

Report Date: 07-08-2002

SATURATION LEVEL		MOMENTARY EXCESS (lbs/1000 Barrels)	
Calcite (CaCO ₃)	2.74	Calcite (CaCO ₃)	0.0424
Aragonite (CaCO ₃)	2.34	Aragonite (CaCO ₃)	0.0382
Witherite (BaCO ₃)	< 0.001	Witherite (BaCO ₃)	-22.23
Strontianite (SrCO ₃)	0.128	Strontianite (SrCO ₃)	-0.664
Magnesite (MgCO ₃)	0.562	Magnesite (MgCO ₃)	-0.0438
Anhydrite (CaSO ₄)	1.26	Anhydrite (CaSO ₄)	58.69
Gypsum (CaSO ₄ *2H ₂ O)	1.54	Gypsum (CaSO ₄ *2H ₂ O)	138.60
Barite (BaSO ₄)	17.15	Barite (BaSO ₄)	2.55
Celestite (SrSO ₄)	0.448	Celestite (SrSO ₄)	-90.86
Silica (SiO ₂)	0.00	Silica (SiO ₂)	-39.59
Brucite (Mg(OH) ₂)	< 0.001	Brucite (Mg(OH) ₂)	-0.384
Magnesium silicate	0.00	Magnesium silicate	-104.56
Iron hydroxide (Fe(OH) ₃)	< 0.001	Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00	Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	2.45	Siderite (FeCO ₃)	0.0451
Halite (NaCl)	0.0332	Halite (NaCl)	-140979
Thenardite (Na ₂ SO ₄)	< 0.001	Thenardite (Na ₂ SO ₄)	-74160
Iron sulfide (FeS)	7.68	Iron sulfide (FeS)	1.87

SIMPLE INDICES

Langelier	0.856
Ryznar	4.37
Puckorius	1.14
Larson-Skold Index	104.33
Stiff Davis Index	0.236
Odde-Tomson	-0.188

OPERATING CONDITIONS

Temperature (°F)	90.00
Time (secs)	1.00

UNICHEM - Midland Analytical Laboratory
P.O. Box 61427, Midland, Texas 79711

DownHole SAT (tm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) TB B-624 (25%)

2) TB B-912 (75%)

Report Date: 07-08-2002

SATURATION LEVEL		MOMENTARY EXCESS (Lbs/1000 Barrels)	
Calcite (CaCO ₃)	3.58	Calcite (CaCO ₃)	0.0430
Aragonite (CaCO ₃)	2.90	Aragonite (CaCO ₃)	0.0390
Witherite (BaCO ₃)	< 0.001	Witherite (BaCO ₃)	-23.15
Strontianite (SrCO ₃)	0.0472	Strontianite (SrCO ₃)	-1.74
Magnesite (MgCO ₃)	1.30	Magnesite (MgCO ₃)	0.0114
Anhydrite (CaSO ₄)	1.77	Anhydrite (CaSO ₄)	106.48
Gypsum (CaSO ₄ *2H ₂ O)	0.847	Gypsum (CaSO ₄ *2H ₂ O)	-10.19
Barite (BaSO ₄)	2.48	Barite (BaSO ₄)	1.61
Celestite (SrSO ₄)	0.343	Celestite (SrSO ₄)	-125.36
Silica (SiO ₂)	0.00	Silica (SiO ₂)	-110.84
Brucite (Mg(OH) ₂)	< 0.001	Brucite (Mg(OH) ₂)	-0.518
Magnesium silicate	0.00	Magnesium silicate	-165.09
Iron hydroxide (Fe(OH) ₃)	< 0.001	Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00	Strengite (FePO ₄ *2H ₂ O)	> -0.001
Siderite (FeCO ₃)	5.51	Siderite (FeCO ₃)	0.0562
Halite (NaCl)	0.0241	Halite (NaCl)	-171107
Thenardite (Na ₂ SO ₄)	< 0.001	Thenardite (Na ₂ SO ₄)	-78151
Iron sulfide (FeS)	10.07	Iron sulfide (FeS)	1.88

SIMPLE INDICES

Langelier	1.35
Ryznar	3.38
Puckorius	0.145
Larson-Skold Index	103.85
Stiff Davis Index	1.79
Oddo-Tomson	0.726

OPERATING CONDITIONS

Temperature (°F)	180.00
Time (secs)	1.00

UNICHEM - Midland Analytical Laboratory
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DownHole SAT (tm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) TB B-624 (75%)

2) TB B-912 (25%)

Report Date: 07-08-2002

SATURATION LEVEL		MOMENTARY EXCESS (Lbs/1000 Barrels)	
Calcite (CaCO ₃)	6.36	Calcite (CaCO ₃)	0.0808
Aragonite (CaCO ₃)	5.14	Aragonite (CaCO ₃)	0.0772
Witherite (BaCO ₃)	0.00211	Witherite (BaCO ₃)	-20.49
Strontianite (SrCO ₃)	0.119	Strontianite (SrCO ₃)	-1.04
Magnesite (MgCO ₃)	1.69	Magnesite (MgCO ₃)	0.0328
Anhydrite (CaSO ₄)	1.66	Anhydrite (CaSO ₄)	80.03
Gypsum (CaSO ₄ *2H ₂ O)	0.813	Gypsum (CaSO ₄ *2H ₂ O)	-24.30
Barite (BaSO ₄)	6.07	Barite (BaSO ₄)	6.07
Celestite (SrSO ₄)	0.456	Celestite (SrSO ₄)	-99.57
Silica (SiO ₂)	0.00	Silica (SiO ₂)	-115.78
Brucite (Mg(OH) ₂)	< 0.001	Brucite (Mg(OH) ₂)	-0.582
Magnesium silicate	0.00	Magnesium silicate	-168.85
Iron hydroxide (Fe(OH) ₃)	< 0.001	Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00	Strengite (FePO ₄ *2H ₂ O)	> -0.001
Siderite (FeCO ₃)	11.63	Siderite (FeCO ₃)	0.101
Halite (NaCl)	0.0149	Halite (NaCl)	-183416
Thenardite (Na ₂ SO ₄)	< 0.001	Thenardite (Na ₂ SO ₄)	-76729
Iron sulfide (FeS)	13.48	Iron sulfide (FeS)	2.34

SIMPLE INDICES

Langelier	1.59
Ryznar	3.01
Puckorius	-0.257
Larson-Skold Index	68.08
Stiff Davis Index	1.99
Odde-Tomson	1.01

OPERATING CONDITIONS

Temperature (°F)	180.00
Time (secs)	1.00

UNICHEM - Midland Analytical Laboratory
P.O. Box 61427, Midland, Texas 79711

DownHole SAT (tm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) TB B-624 (50%)

2) TB B-912 (50%)

Report Date: 07-08-2002

SATURATION LEVEL		MOMENTARY EXCESS (Lbs/1000 Barrels)	
Calcite (CaCO ₃)	4.87	Calcite (CaCO ₃)	0.0614
Aragonite (CaCO ₃)	3.94	Aragonite (CaCO ₃)	0.0576
Witherite (BaCO ₃)	0.00112	Witherite (BaCO ₃)	-21.83
Strontianite (SrCO ₃)	0.0778	Strontianite (SrCO ₃)	-1.33
Magnesite (MgCO ₃)	1.51	Magnesite (MgCO ₃)	0.0219
Anhydrite (CaSO ₄)	1.73	Anhydrite (CaSO ₄)	94.27
Gypsum (CaSO ₄ *2H ₂ O)	0.837	Gypsum (CaSO ₄ *2H ₂ O)	-15.89
Barite (BaSO ₄)	4.38	Barite (BaSO ₄)	3.85
Celestite (SrSO ₄)	0.405	Celestite (SrSO ₄)	-111.49
Silica (SiO ₂)	0.00	Silica (SiO ₂)	-113.30
Brucite (Mg(OH) ₂)	< 0.001	Brucite (Mg(OH) ₂)	-0.549
Magnesium silicate	0.00	Magnesium silicate	-167.07
Iron hydroxide (Fe(OH) ₃)	< 0.001	Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00	Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	8.20	Siderite (FeCO ₃)	0.0781
Halite (NaCl)	0.0192	Halite (NaCl)	-177352
Thenardite (Na ₂ SO ₄)	< 0.001	Thenardite (Na ₂ SO ₄)	-77497
Iron sulfide (FeS)	12.10	Iron sulfide (FeS)	2.11

SIMPLE INDICES

Langelier	1.48
Ryznar	3.18
Puckorius	-0.0670
Larson-Skold Index	83.86
Stiff Davis Index	1.89
Oddo-Tomson	0.875

OPERATING CONDITIONS

Temperature (°F)	180.00
Time (secs)	1.00

UNICHEM - Midland Analytical Laboratory
P.O. Box 61427, Midland, Texas 79711

R49-5-2. Requirements For Class II Injection Wells Including Water Disposal, Storage And Enhanced Recovery Wells.	Completed Items, Needed Items, & Comments
<p>1. Injection wells shall be completed, equipped, operated, and maintained in a manner that will prevent pollution and damage to any USDW or other resources and will confine injected fluids to the interval approved.</p> <p>2. The application for an injection well shall include a properly completed UIC Form 1 and the following:</p> <p>2.1. A plat showing the location of the injection well, all abandoned or active wells within a one-half mile radius of the proposed well, and the surface owner and the operator of any lands or producing leases, respectively, within a one-half mile radius of the proposed injection well.</p> <p>2.2. Copies of electrical or radioactive logs, including gamma ray logs, for the proposed well run prior to the installation of casing and indicating resistivity, spontaneous potential, caliper, and porosity.</p> <p>2.3. A copy of a cement bond or comparable log run for the proposed injection well after casing was set and cemented.</p> <p>2.4. Copies of logs already on file with the division should be referenced, but need not be refiled.</p> <p>2.5. A description of the casing or proposed casing program of the injection well and of the proposed method for testing the casing before use of the well.</p> <p>2.6. A statement as to the type of fluid to be used for injection, its source and estimated amounts to be injected daily.</p> <p>2.7. Standard laboratory analyses of (1) the fluid to be injected, (2) the fluid in the formation into which the fluid is being injected, and (3) the compatibility of the fluids.</p> <p>2.8. The proposed average and maximum injection pressures.</p> <p>2.9. Evidence and data to support a finding that the proposed injection well will not initiate fractures through the overlying strata or a confining interval that could enable the injected fluid or formation fluid to enter the fresh water strata.</p> <p>2.10. Appropriate geological data on the injection interval and confining beds, and nearby Underground Sources of Drinking Water, including the geologic name, lithologic description, thickness, depth, water quality, and lateral extent; also information relative to geologic structure near the proposed well which may effect the conveyance and/or storage of the injected fluids.</p> <p>2.11. A review of the mechanical condition of each well within a one-half mile radius of the proposed injection well to assure that no conduit exists that could enable fluids to migrate up or down the wellbore and enter improper intervals.</p> <p>2.12. An affidavit certifying that a copy of the application has been provided to all operators, owners and surface owners within a one-half mile radius of the proposed injection well.</p> <p>2.13. Any other additional information that the board or division may determine is necessary to adequately review the application.</p>	<p>2. OK</p> <p>2.1. The plat(s) (Atts. #2 & #9) with the "1/2 mile" circle do not encompass an area with a radius of 1/2 mile (2640 feet) as required by the Rules. The radius in Attachment #9 is labelled as being of 2560 feet. This is too short. Both plats fail to include the B-614A well, which our records indicate falls within a true 1/2 mile Area of Review (AoR). An actual measure of the radius on either plat is not possible because no map scale is provided. In addition, the radius is swung about the bottom hole location (BHL) rather than the top hole location. If it is also necessary to swing a radius about the BHL, then another well (BHL for C-814) may also fall within the AoR. The inadequacy of the plats constitutes a fatal flaw in the informational submission and the permit application will not advance further until this is remedied.</p> <p>2.2. Division/Geologic libraries document BHC Sonic and Compensated Neutron logs on file for this well.</p> <p>2.3. OK</p> <p>2.4. OK</p> <p>2.5. The operator will need to propose a casing mechanical integrity testing regimen suitable to the rigors of the operational environment. An assessment of the fitness of the wellhead, tubing, casing and packer fluid for service in an H₂S/CO₂ injection environment. Reference may legitimately be made to the testing program for the B-624 injection well.</p> <p>2.6. Information will be required to more closely define the properties, particularly as regards corrosion, at likely temperatures and pressures, of the fluid mixture proposed for injection. Reference may legitimately be made to the properties of the injectate in the B-624 injection well for comparison.</p> <p>2.7. A comprehensive analysis of the properties of the injectate will be required for 2.6, above. The Division waives the requirement for a compatibility analysis as it is superfluous to this proposal. A standard UIC grade lab analysis of the formation water will be needed.</p> <p>2.8. OK</p> <p>2.9. A step rate test will be needed.</p> <p>2.10. OK</p> <p>2.11. There are more than three wells likely to be within the 1/2 mile AoR.</p> <p>2.12. OK</p> <p>2.13. Please address the overall safety issues, which may bear on this type of operation, with comments on H₂S contingency plans for likely ancillary operations such as workovers.</p>

OTHER COMMENTS AND OBSERVATIONS: To reiterate, the flaw cited in 2.1, above, is construed to be a fatal flaw and must be remedied before any further agency action, such as Noticing, can occur.

<p>R49-5-2. Requirements For Class II Injection Wells Including Water Disposal, Storage And Enhanced Recovery Wells.</p>	<p align="center">Completed Items, Needed Items, & Comments</p>
<p>1. Injection wells shall be completed, equipped, operated, and maintained in a manner that will prevent pollution and damage to any USDW or other resources and will confine injected fluids to the interval approved.</p> <p>2. The application for an injection well shall include a properly completed UIC Form 1 and the following:</p> <p>2.1. A plat showing the location of the injection well, all abandoned or active wells within a one-half mile radius of the proposed well, and the surface owner and the operator of any lands or producing leases, respectively, within a one-half mile radius of the proposed injection well.</p> <p>2.2. Copies of electrical or radioactive logs, including gamma ray logs, for the proposed well run prior to the installation of casing and indicating resistivity, spontaneous potential, caliper, and porosity.</p> <p>2.3. A copy of a cement bond or comparable log run for the proposed injection well after casing was set and cemented.</p> <p>2.4. Copies of logs already on file with the division should be referenced, but need not be refilled.</p> <p>2.5. A description of the casing or proposed casing program of the injection well and of the proposed method for testing the casing before use of the well.</p> <p>2.6. A statement as to the type of fluid to be used for injection, its source and estimated amounts to be injected daily.</p> <p>2.7. Standard laboratory analyses of (1) the fluid to be injected, (2) the fluid in the formation into which the fluid is being injected, and (3) the compatibility of the fluids.</p> <p>2.8. The proposed average and maximum injection pressures.</p> <p>2.9. Evidence and data to support a finding that the proposed injection well will not initiate fractures through the overlying strata or a confining interval that could enable the injected fluid or formation fluid to enter the fresh water strata.</p> <p>2.10. Appropriate geological data on the injection interval and confining beds, and nearby Underground Sources of Drinking Water, including the geologic name, lithologic description, thickness, depth, water quality, and lateral extent; also information relative to geologic structure near the proposed well which may effect the conveyance and/or storage of the injected fluids.</p> <p>2.11. A review of the mechanical condition of each well within a one-half mile radius of the proposed injection well to assure that no conduit exists that could enable fluids to migrate up or down the wellbore and enter improper intervals.</p> <p>2.12. An affidavit certifying that a copy of the application has been provided to all operators, owners and surface owners within a one-half mile radius of the proposed injection well.</p> <p>2.13. Any other additional information that the board or division may determine is necessary to adequately review the application.</p>	<p align="center"><i>Darrens Henke (303) 260-5157</i></p> <hr/> <p><i>B-814 T/perf = 8476 Elevation (GL) 6466</i> <i>1500 1.5</i> <i>seek 7200* 1.5 m/d (-2010)</i></p> <p><i>3941 @ 4.65 psi / ft 3671 HP @ 9.33* / gal</i></p> <hr/> <p><i>B-624 T/perf = 8936 Elevation (GL) 6305</i> <i>9460 @ 1.960* 1.7 m/d (-2631)</i></p> <p><i>4155 @ 4.65 psi / ft 3870 HP @ 9.33* / gal</i></p> <p><i>~ 210* difference 199* difference</i></p> <hr/> <p><i>Encana (303) 260-5000</i> <i>rschuyler@tombrown.com</i> <i>Ron Schuyler (303) 260 5142</i> <i>Ops Coord</i></p> <hr/> <p>2.11. There are more than three wells likely to be within the ½ mile AoR.</p> <p>2.12. OK</p> <p>2.13. Please address the overall safety issues, which may bear on this type of operation, with comments on H₂S contingency plans for likely ancillary operations such as workovers.</p>

OTHER COMMENTS AND OBSERVATIONS: To reiterate, the flaw cited in 2.1, above, is construed to be a fatal flaw and must be remedied before any further agency action, such as Noticing, can occur.

WELLBORE DIAGRAM

Surface Loc: 2601' FSL & 1482' FWL, Sec. 14

Operator: Tom Brown, Inc.
 Well Name: Lisbon B-814
 Lease Number: 8910079759
 Location: NESW Sec. 14-T30S-R24E
 Field: Lisbon
 County, State: San Juan County, UT
 API Number: 43-037-30082
 Diagram Date: 3/16/2004 jw

FORMATIONS

Homaker Trail 3162
 Ismay 4040
 Paradox Salt 4386
 Base Salt 8350
 Mississippian 8470
 Ouray 8916

KB 6482'

GL 6468'

9-5/8" 43.5# N-80 csg set @ 1003'. Cmt'd w/ 450 sx 50/50 Poz f/b 150 sx "C" - cmt to surf (set 7/13/72)

GLV 1800'

GLV 3068'

GLV 4257'

GLV 5417'

GLV 6514'

GLV 7586'

Baker R-3 pkr 8436'

8476-8479'

8538-8546

8568-8640

8640-8650'

8662-8670

8772-8781'

8789-8808'

8843-8875

PBTD 8935'

5-1/2" 17# J-55 & N-80 csg @ 9450'.

Well History

Spud Date: 7/8/1972
 TD Reached: 8/29/1972
 Completion Date: 10/13/1972

Tubing Detail:

KB	14.00'
"R" Nipple @ 8431	1.00'
Baker R-3 5-1/2" x 2-7/8" pkr 18#k compr.	7.00'
124 jts 2-7/8" J-55 EUE 8rd tbg	8,414.00
EOT	8436.00'

Gas Lift Valves @ 7586', 6514', 5417', 4257', 3068', 1800'

5/1991: Perf'd w/4 spf, acidize w/4300 gal 15% HCL SWIC acid

5/1991: Perf'd w/4 spf, acidize w/500 gal 15% HCL

8/1982: Perf'd w/4 spf, acidize w/2000 gals 28 HCL
 Sqzd w/150 sx "G" cmt

9/1972: Perf'd w/ 2 spf. Acdz w/500 gals 28% HCL acid
 Sqzd w/150 sx cmt

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
 Sqz'd perms w/185 sx cmt

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
 Sqz'd perms w/200 sx cmt

Cmt retainer @ 8658'

Cmt retainer @ 8721

Cmt retainer @ 8783'

Cmt retainer @ 8829'

) [] 89 []) Cemented w/ 900 sx Halcolite; f/b 150 sx []

WELLBORE DIAGRAM

PROPOSED ACID GAS INJECTION

Surface Loc: 2601' FSL & 1482' FWL, Sec. 14

Operator:	Tom Brown, Inc.
Well Name:	Lisbon B-814
Lease Number:	8910079759
Location:	NESW Sec. 14-T30S-R24E
Field:	Lisbon
County, State:	San Juan County, UT
API Number:	43-037-30082
Diagram Date:	3/23/2004 jw

FORMATIONS

Homaker Trail	3162
Ismay	4040
Paradox Salt	4386
Base Salt	8350
Mississippian	8470
Ouray	8916

KB 6482'

GL 6468'

9-5/8" 43.5# N-80 csg set @
1003'. Cmt'd w/ 450 sx 50/50
Poz f/b 150 sx "C" - cmt to surf
(set 7/13/72)

Well History



Spud Date:	7/8/1972
TD Reached:	8/29/1972
Completion Date:	10/13/1972

Tubing Detail:

KB	14.00'
"R" Nipple @ 8431	1.00'
Baker R-3 5-1/2" x 2-7/8" pkr 18#k compr.	7.00'
124 jts 2-7/8" J-55 EUE 8rd tbg	8,414.00
EOT	8436.00'

Permanent Packer
8436'

	8476-8479'	5/1991: Perf'd w/4 spf, acidize w/4300 gal 15% HCL SWIC acid
	8538-8546	
	8568-8640	
	8640-8650'	5/1991: Perf'd w/4 spf, acidize w/500 gal 15% HCL
Cmt retainer @ 8658'	8662-8670	8/1982: Perf'd w/4 spf, acidize w/2000 gals 28 HCL Sqzd w/150 sx "G" cmt
Cmt retainer @ 8721	8772-8781'	9/1972: Perf'd w/ 2 spf. Acdz w/500 gals 28% HCL acid Sqzd w/150 sx cmt
	8789-8808'	9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL Sqz'd perms w/185 sx cmt
Cmt retainer @ 8783'	8843-8875	9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL Sqz'd perms w/200 sx cmt
Cmt retainer @ 8829'		
	PBTD 8935'	
	5-1/2" 17# J-55 & N-80 csg @ 9450'.	

)  89 ) Cemented w/ 900 sx Halcolite; f/b 150 s

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

UIC FORM 1

APPLICATION FOR INJECTION WELL

Name of Operator Tom Brown Inc.			Utah Account Number N	Well Name and Number Lisbon B-814
Address of Operator 555 17th Street			Phone Number (303) 260-5030	API Number 4303730082
CITY Denver STATE CO ZIP 80202				
Location of Well Footage : 2601' FSL, 1482' FWL County : San Juan				Field or Unit Name Lisbon
QQ, Section, Township, Range: NENW 14 30S 24E State : UTAH				Lease Designation and Number 8910079759

Is this application for expansion of an existing project? Yes ☒ No ☐

Will the proposed well be used for:	Enhanced Recovery?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	Disposal?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Storage?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Is this application for a new well to be drilled? Yes ☐ No ☒

If this application is for an existing well, has a casing test been performed? Yes ☐ No ☒
Date of test: _____

Proposed injection interval: from 8,476 to 8,650

Proposed maximum injection: rate 1.3 MMSCF/D bpd pressure 1,200 psig

Proposed injection zone contains oil ☒, gas ☒, and / or fresh water ☐ within 1/2 mile of the well.

List of attachments: _____

**ATTACH ADDITIONAL INFORMATION AS REQUIRED BY CURRENT
UTAH OIL AND GAS CONSERVATION GENERAL RULES**

I hereby certify that this report is true and complete to the best of my knowledge.

Name (Please Print) Martin W. Buys

Title Agent for Tom Brown Inc.

Signature 

Date 4/6/2004

From: "Marty Buys" <mbuys@buysandassociates.com>
To: "Chris Kierst" <chriskierst@utah.gov>
Date: 5/6/2004 7:46:10 AM
Subject: Re: B-814 "acid gas" Class II UIC Application Submission AnalysisDocument

Martin W. Buys, President
300 E. Mineral Ave., Suite 10
Littleton, CO 80122-2655
303/781-8211
303/781-1167 Fax
mbuys@buysandassociates.com

PRIVILEGED AND CONFIDENTIAL ATTORNEY CLIENT COMMUNICATION

----- Original Message -----

From: "Chris Kierst" <chriskierst@utah.gov>
To: <mhuys@buysandassociates.com>
Cc: <golson@tombrown.com>; "Gil Hunt" <GILHUNT@utah.gov>
Sent: Tuesday, May 04, 2004 5:33 PM
Subject: B-814 "acid gas" Class II UIC Application Submission
AnalysisDocument

> Attached please find a copy of the subject Analysis Document. Please
> feel free to call [(801) 538-5337] or email if you have any questions or
> if I may be of any assistance in this matter.
>

June 15, 2004

Mr. Chris Kierst
State of Utah
Division of Oil, Gas and Mining
1594 W. North Temple, Suite 1210
Salt Lake City, Utah 84114

RE: REVISED PERMIT APPLICATION – LISBON B-814 WELL
API # 43-037-30082
NENW Sec. 14 -T30S- R24E
San Juan County, Utah

Dear Mr Kierst:

Tom Brown Inc. is providing the following information that you requested for this application.

1. Two new maps have been prepared. The first map has two ½ mile radius circles which are based on the top and bottom hole locations of the B-814. These new 1/2 mile radius circles include 2 more wells in the analysis. These new wells are the C-814 and the B-614A.

The first map also shows the surface ownership. The second map shows the mineral ownership.

2. A new completion data table has been prepared that includes the new wells.
3. Completion data and a wellbore diagrams are provided for the B-614A and the C-814.
4. A Cement Bond Log is provided for the B-614A. There appears to be no Cement Bond Log for the C-814.

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Filed - 24
2 copies - BLN1
B045
275-28

Still no scale on maps but I will accept them as sufficient to account to include the two additional wells.
CK 7/1/04

*Some
new
procedures
and test pressures.
AK 7/1/04*

Completion Procedures for the B-814 Well

1. MIRU coiled tubing unit. Notify UT DOGM at least 3 days prior that a pressure test is being conducted.
2. Clean out fill through 3 1/2" tubing from 8400' to 8650'.
3. RD CT Unit.
4. MIRU workover rig.
5. Sting tubing out of permanent packer.
6. Circulate in nonconductive packer fluid such as diesel containing corrosion inhibitor.
7. Sting back into permanent packer.
8. Replace wellhead to meet NACE MR0175.
9. Pressure test backside to 1500 psi for 30 minutes using pressure recorders.
10. RU WL. Set profile plug at bottom of 3 1/2' tubing.
11. Pressure test tubing to 1500 psi for 30 minutes.
12. Pull tubing profile plug.
13. Run tubing inspection log.
14. Run subsurface check valve in tubing.
15. Put well on gas re-injection.

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5. A discussion of the safety and control procedures that will be installed on the pipeline, well pad and the wellhead is included in Attachment #10.
6. The completion procedure has been re-written to include the procedures discussed in Attachment #10.
7. The initial application text has been revised to include this new data. We have only included the attachments that have changed.

We believe that this additional data will allow you to continue your review of this permit application. After you have reviewed this data, please contact me so we can discuss how to proceed.

Sincerely,
BUYS & ASSOCIATES, INC.



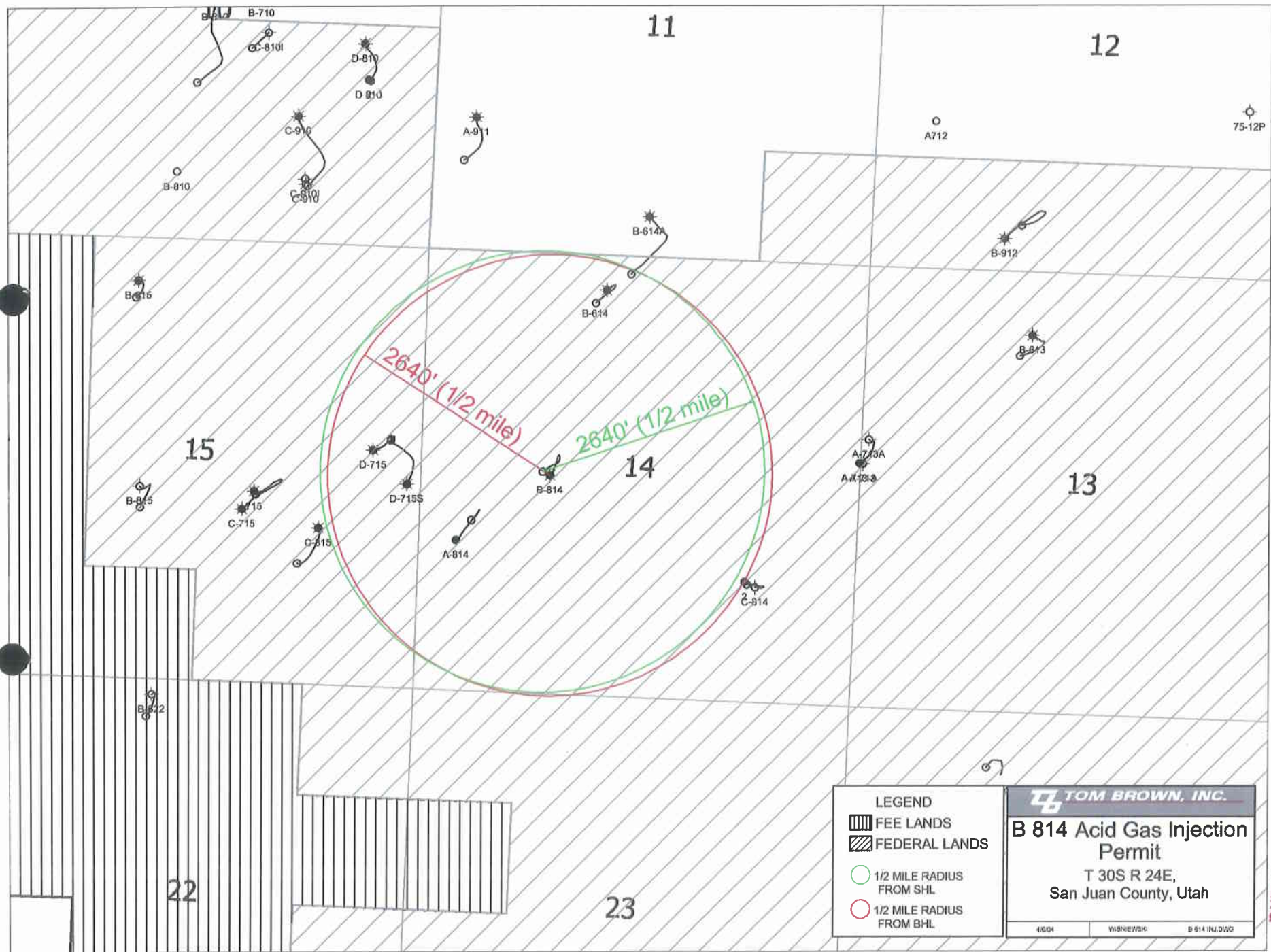
Agent for Tom Brown, Inc.

cc: BLM, Moab Field Office

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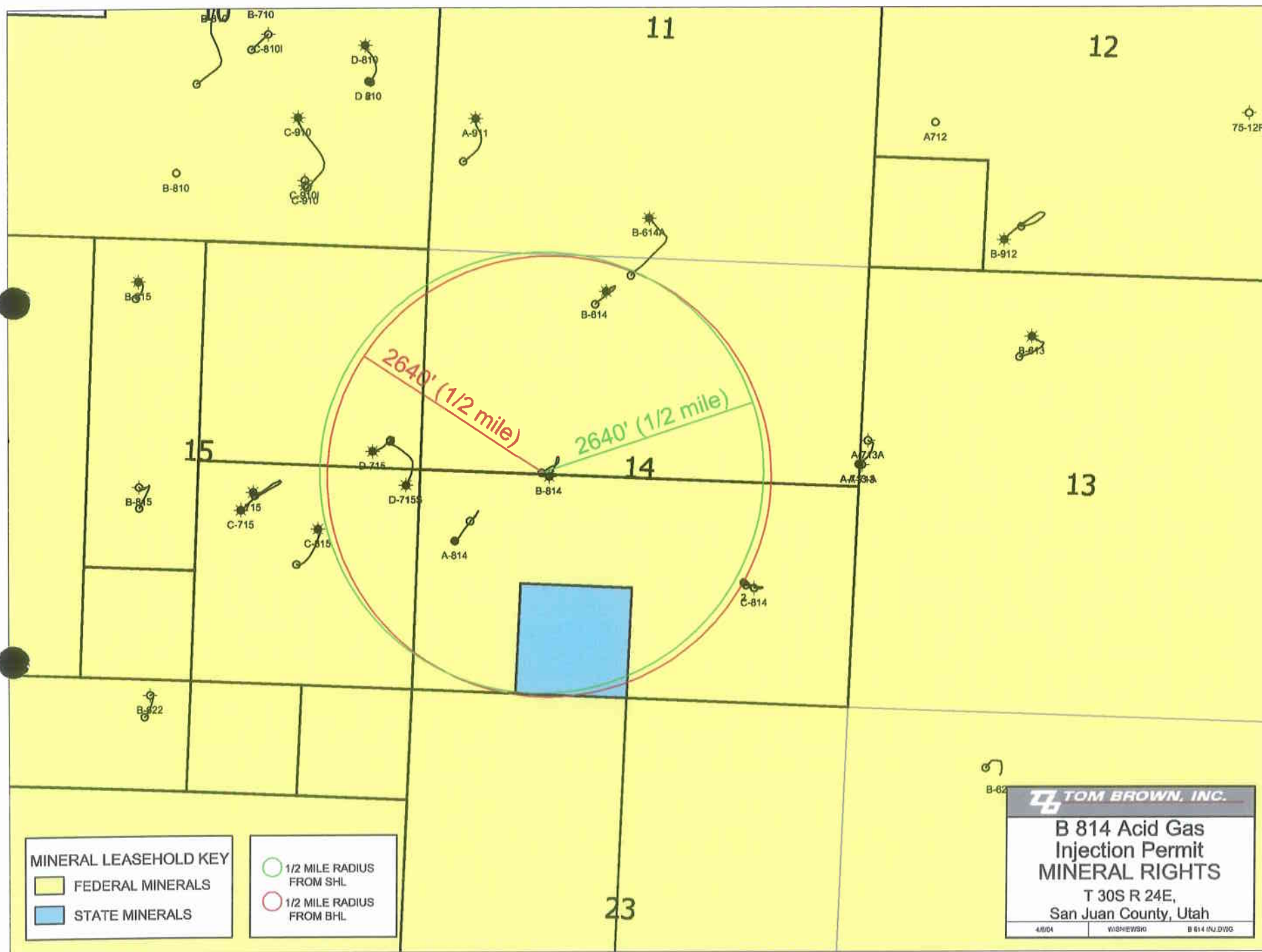
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UNDERGROUND INJECTION CONTROL

APPLICATION MODIFICATION

LISBON B-814
NENW Sec. 14 -T30S- R24E
San Juan County, Utah

7/10/04 Talked w/ Marty Bump
about B-814 permit application.

15, 2004

Informed him that the well was Noticed
(or about) on 7/3/04. Mentioned that they

ared for:

will need a plan for ongoing MITs and
will need an analysis of the impact of
the changed injectate formula on their
systems, safety issues and corrosion
avoidance measures. Tell us why it

ris Kierst
of Utah
, Gas and Mining
North Temple
e 1210
ty, Utah 84114

is not a problem to carry 4% H₂O
now? Mentioned that this impacts

red by:

2.5, 2.6 and 2.7 of the permit
Analysis Document. Mentioned that

OCIATES, INC.
eral, Suite 10
lorado 80112
81-8211
781-1167

SRT and first MIT will need to
be done before permit is issued.
OK 7/10/04

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UNDERGROUND INJECTION CONTROL
APPLICATION MODIFICATION

LISBON B-814
NENW Sec. 14 -T30S- R24E
San Juan County, Utah

June 15, 2004

Prepared for:

Mr. Chris Kierst
State of Utah
Division of Oil, Gas and Mining
1594 W. North Temple
Suite 1210
Salt Lake City, Utah 84114

Prepared by:

BUYS & ASSOCIATES, INC.
300 E. Mineral, Suite 10
Littleton, Colorado 80112
(303) 781-8211
FAX (303) 781-1167

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LISBON B-814

LIST OF ATTACHMENTS

Attachment No. 1	Site Map
Attachment No. 2	Map of Adjacent Wells
Attachment No. 3	Cross-Section, Structure Map, Completion Data and Summary
Attachment No. 4	Cement Bond Log
Attachment No. 5	Proposed Completion and Well Bore Diagram
Attachment No. 6	Completion Data and Well Bore Diagrams for Offset Wells
Attachment No. 7	Water Analysis
Attachment No. 8	List of Producing Wells
Attachment No. 9	Ownership Map, List of Owners, Affidavit Notification
Attachment No. 10	Safety & Control Procedures

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UIC WELL APPLICATION

Lisbon B-814
API # 43-037-30082

Tom Brown Inc. is requesting a permit to convert the Lisbon B-814 well into an acid gas injection well. This well has been shut-in for the last 10 years. It is completed in the Mississippian Leadville formation in the Lisbon Field, San Juan County, Utah.

The following document contains information to support this modification.

1. TBI is the operator and major working interest owner of wells located in the Lisbon Field, San Juan County, Utah. TBI's business address is provided below:

Tom Brown Inc.
555 17th Street
Suite 1850
Denver, CO 80202

2. The Lisbon B-814 is an existing shut-in well. The well was spudded on 7/8/1972.
3. During the initial production of the field, the wells produced both oil and gas and the gas was separated and re-injected. As the oil production declined, the Lisbon Gas Plant was built to process and sell the gas. The make-up of the gas has changed over time and the plant is currently being re-configured. The new process will concentrate the off gases into an "acid-gas" stream and this acid gas is what will be injected into B-814.

The acid gas stream is approximately 4% water, 50% H₂S and 46% CO₂.

4. Enclosed as Attachment No. 1 (Site Map), is a plat of the B-814.
5. Enclosed as Attachment No. 2 (Site Diagram of Adjacent Wells), is a plat showing that portion of the Lisbon Field in the area adjacent to the Lisbon B-814. The legal location for the well is 2601' FSL, 1482' FWL, Sec. 14, T30S, R24E, San Juan County, Utah.

Shown on the plat is a circle of one-half mile radius centered on the Lisbon B-814 well. The ½ mile radius encompasses the area of the review, within which TBI is required to investigate all wells for mechanical integrity. The ½ mile radius also identifies those

Tom Brown Inc.
Lisbon B-814 Permit Application

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lands, the owners thereof, which must be provided notice of this application. The following wells are located within this ½ mile radius: B-814 (SI), C-814 (P&A), B-614 (Producing), B-614A (SI), D-715 (P&A), A-814 (P&A).

add'n wells added.

6. TBI proposes to utilize the Lisbon B-814 as a disposal well for gas re-injection from the Lisbon Gas Plant. This gas was produced from wells in the Lisbon Field. The Lisbon Field is a unitized field that is managed by the Moab Field office of the BLM.
7. TBI proposes to utilize the Mississippian Leadville formation as the disposal zone. This formation is also the producing formation. The gross injection interval in the Lisbon B-814 will be from 8476' to 8650'.
8. The Lisbon Field is located upon a large faulted anticlinal feature that encompasses approximately 5,000 acres. Structural closure on the field is almost 2,000 feet. When discovered the Lisbon structure was filled to the spill point with hydrocarbons. The northeast boundary of the anticline is bordered by a high angle reverse fault. Displacements on this fault are as much as 2,100 feet. The entire Lisbon anticline is totally encased by the Paradox salt. The Tom Brown, Inc. B-814 well that is being proposed for the re-injection of acid gas is located on the southeast flank of the Lisbon anticline, approximately 1,700 feet to 1,800 feet low to the anticline's crest.

It is proposed that the B-814 well will be utilized in the field as a acid gas re-injection well. The Mississippian Leadville is the recipient formation. The Leadville Formation is overlain by the Pennsylvanian Molas Formation, a vari-colored shale; the Pennsylvanian Pinkerton Trail Formation, a gray-brown dense dolomite interbedded with anhydrite, gray dolomitic siltstones, and thin gray-green shales; and the Pennsylvanian Paradox Salt, a thick salt containing beds of black shale, dolomite, dolomitic sands and anhydrite. Taken together, any or all of these beds would provide a top seal for the Leadville Formation. The Devonian Ouray Formation, a white, gray, or buff limestone, largely lacking effective porosity and permeability in the Lisbon Field area, underlies the Leadville Formation. The Ouray Formation will form an effective bottom seal at the B-814. The lower 100' +/- of the Leadville Formation in the area of the B-814 is also devoid of effective porosity and permeability and would serve to re-enforce a bottom seal.

There are no sources of underground drinking water near the Lisbon B-814.

Included by reference is the reservoir survey presented by Tom Brown for the approval of the B-624 permit application which was approved in 2003.

Attachment No. 3 contains a structure map, cross-section, completion summary and data.

Tom Brown Inc.
Lisbon B-814 Permit Application

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9. The Cement Bond Log for the Lisbon B-814 is included in Attachment No. 4.

The write up for the completion procedure of the Lisbon B-814 and the wellbore diagram is included in Attachment No. 5.

A discussion of the safety and control procedures that will be installed on the pipeline, well pad and the wellhead is included in Attachment No. 10. *new*

Completion data and logs for the 5 other wells in the review are located in Attachment 6. C-814, D-715 and A-814 are plugged, B-614 is producing and B-614A is shut in.

10. The source of fluid and gases for disposal in the Lisbon B-814 will be from the wells in the Lisbon Field that have been processed in the Lisbon Plant. Enclosed as Attachment No. 7 are standard analyses of formation produced water.

Various produced water samples were mixed with each other and with the Lisbon B-624 water. The water Deposition Potential Indicators analysis shows that there is little scaling potential in the mixed waters. This is the same type of water that will be injected into the B-814.

ville water from the Lisbon B-624 is 76,671 mg/L
e the 10,000 ppm value utilized by the Board as the

B-814 well for disposal is included in Attachment

Lisbon B-814 is estimated to be 1.3 MMSCF/day.
10 psig at the surface

of all the owners, operators, royalty and surface
radius of the Lisbon B-814. The surface owner is
ie BLM and SITLA.

ified all of the operators, owners, and surface
adius of the Lisbon B-814 well is also included in

own will conduct a step rate test and an MIT test.
1 and submitted to DOGM.

ly permit is issued unless a special permission
testing and review of the results

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*USGS Gas (Methane) Study
Map
11x17 for GI
Contracted B-624
Tom Brown Acid Gas
① Need a discussion of why
the injectate mixture is being
changed from 50-50 to 50-46-4
and the impact of the change on the
safety & corrosion potential of the
system
② Need a plan for ongoing
MIT tailored to B-814 and
gas ops (cf B-624 acid gas ops)*

9. The Cement Bond Log for the Lisbon B-814 is included in Attachment No. 4.

The write up for the completion procedure of the Lisbon B-814 and the wellbore diagram is included in Attachment No. 5.

A discussion of the safety and control procedures that will be installed on the pipeline, well pad and the wellhead is included in Attachment No. 10. *new*

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Various produced water samples were mixed with each other and with the Lisbon B-624 water. The water Deposition Potential Indicators analysis shows that there is little scaling potential in the mixed waters. This is the same type of water that will be injected into the B-814.

The analysis of the Mississippian Leadville water from the Lisbon B-624 is 76,671 mg/L of total dissolved solids. This is above the 10,000 ppm value utilized by the Board as the upper threshold for "fresh water."

11. A list of wells that may use the Lisbon B-814 well for disposal is included in Attachment No. 8.

12. The ~~maximum~~ injection volume in the Lisbon B-814 is estimated to be 1.3 MMSCF/day. The ~~estimated~~ injection pressure is 1200 psig at the surface.

13. Enclosed as Attachment No. 8 is a list of all the owners, operators, royalty and surface interest owners located within ½ mile radius of the Lisbon B-814. The surface owner is the BLM and the mineral owners are the BLM and SITLA.

An affidavit certifying that TBI has notified all of the operators, owners, and surface interest owners located within ½ mile radius of the Lisbon B-814 well is also included in Attachment No. 8.

14. Once the draft permit is issued, Tom Brown will conduct a step rate test and an MIT test. *new*
This conversion work will be completed and submitted to DOGM.

These will need to be done before any permit is issued unless a special permission is allowed pending completion of the testing and review of the results.

TBI Production Oil & Gas Company
Lisbon B-814 Application

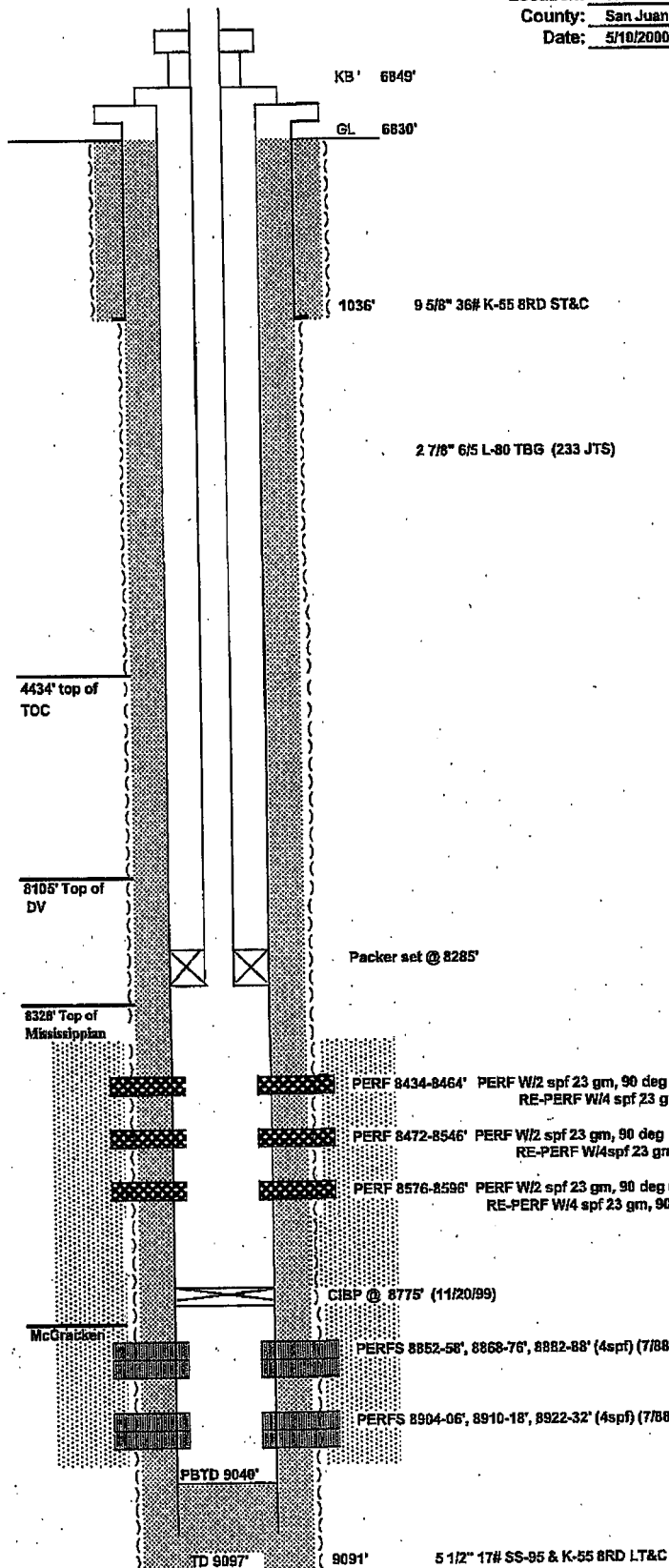
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WELLBORE DIAGRAM

Company: TOM BROWN INC.
 Lease Name: Lisbon
 Lease Number: B-814A
 Location: 300' FNL & 2434' FWL, Sec. 14, T30S, R24E
 County: San Juan
 Date: 5/10/2000



Spud date 5/18/88
 Rig Release 6/25/88

Tubing Detail	
Seating Nipple	1
233 Jts 2 7/8" 6.5# L80 tbg	8274
KB	10
Baker "R" plr2400 set @	8285

PERFS 8434-8464', 8472-8496', 8576-8596'
 ACIDIZED W/400 gal XYLENE, 12,000 gal
 15% SWIC W/ADD BENZOIC FLAKE (11/23/99)

RE-PERFS 8434-8464', 8472-8496', 8576-8596'
 ACIDIZED W/6000 gal 15% HCL, additives
 and N2 assist (5/4/00)

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**UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**

FORM APPROVED
OMB NO. 1004-0137
Expires: November 30, 2000

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *

1a. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Dry <input type="checkbox"/> Other: _____		5. Lease Serial No. SL-070008-A	
1b. Type of Completion: New Well <input type="checkbox"/> Workover <input checked="" type="checkbox"/> Deepen <input type="checkbox"/> Plug Back <input type="checkbox"/> Diff. Reserv. <input type="checkbox"/> Other: _____		6. If Indian, Allottee or Tribe Name	
2. Name of Operator Tom Brown, Inc.		7. Unit or CA Agreement Name and No. Lisbon Unit	
3. Address 555 Seventeenth Street, Suite 1850, Denver, Colorado 80202-3918		8. Lease Name and Well No. Lisbon Unit B 614A	
4. Location of Well (Report location clearly and in accordance with Federal requirements) At Surface 300' FNL & 2434' FWL NENW Sec 14, T30S-R24E At top prod. interval reported below 198' FSL & 2512' FEL Sec 11, T30S-R24E (Top Mississippian at 8328') 217' FSL & 2531' FEL (SWSE) Sec 11, T30S-R24E (Top McCracken at 8825') At total depth 235' FSL & 2548' FEL (SWSE), Sec 11, T30S-R24E		9. API Well No. 43-037-31351	
14. Date Spudded 5/18/1988		10. Field and Pool, or Exploratory Lisbon	
15. Date T.D. Reached 6/25/1988		11. Sec., T., R., M., on Block and Survey or Area Sec 14, T30S-R24E	
16. Date Completed. (prod) <input type="checkbox"/> D&A <input type="checkbox"/> Ready to Prod. original completion 7/14/88		12. County/Parish San Juan County	
		13. State Utah	
17. Elevations (DF, RKB, RT, GL) * KB 6849' GL 6830' ungraded			

18. Total Depth: ME MD 9097' TVD	19. Plug Back T.D.: MD 9040' ETD	20. Depth Bridge Plug Set: CIBP @ 8750'
21. Type Electric & Other Mechanical Logs Run (Submit Copy of each) Original - CCL/GR, CBL w/VDL, DLL-MSFL, LDT, CNL, NGT, GR-BHC, HDT, Cyberlook & Dipmeter.		22. Was Well Cored? <input checked="" type="checkbox"/> No <input type="checkbox"/> Was DST run? <input type="checkbox"/> No <input type="checkbox"/> Directional Survey? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes (Submit copy)

23. Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sks & Type of Cement	Slurry vol. (BBL)	Cement Top*	Amount Pulled
12 1/4"	9 5/8" K-55	36# 8rd ST&C	surface	1036'		435 sxs			
8 3/4"	5 1/2" SS95&K55	17 # 8rd LT&C	surface	9091'		1520 sxs			

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2 7/8"		8285'	"R" 2400					

25. Producing Intervals see wellbore diagram for more details

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf Status
A) Mississippian	8328'	8825'	8434-64', 8472-8546', 8576-96'	23 gm	2 spf	open
B)			same as above	23 gm	4 spf	open
C) McCracken	8852'	TD	8852-58-8868-76', 8922-32'	23 gm	4spf	below CIBP @8775' open
D)			8904-06', 8910-18', 8922-32'	23 gm	4 spf	below CIBP @8775' open

27. Acid, Fracture, Treatment, Cement Squeeze, Etc.

Depth Interval	Amount and Type of Material
8852' - 8932'	4000 gals 15 % HCL w/NE & LST additives, w/240 7/8" ball sealers
8334' - 8596'	11/23/99 - acidize w/400 gals Xylene, 12000 gals 15% SWIC w/add Benzoic Flake
	5/3/00 - Acidize w/6000 gals 15% HCL, additives and N2 assist

28. Production - Interval A

Date First Prod	Test Date	Hours Tested	Test Production	Oil (BBL)	Gas (MCF)	Water (BBL)	Oil Gravity Corr.	Gas Gravity	Production Method
5/6/2000	5/7/00	24 hrs			2000		API		flowing
Choke Size	Tbg Press. Flwg./SI	Csg Press.	24 Hr. Rate	Oil (BBL)	Gas (MCF)	Water (BBL)	Gas:Oil Ratio	Well Status	
	800 psig				2000			producing	

28a. Productin - Interval B

Date First Prod	Test Date	Hours Tested	Test Production	Oil (BBL)	Gas (MCF)	Water (BBL)	Oil Gravity Corr.	Gas Gravity	Production Method
7/21/1988	7/25/1988	24 hrs		225	1103	0	API		flowing
Choke Size	Tbg Press. Flwg./SI	Csg Press.	24 Hr. Rate	Oil (BBL)	Gas (MCF)	Water (BBL)	Gas:Oil Ratio	Well Status	
1/10"	875-845 psi			225	1103	0	4902:1		

(See instructions and spaces for additional data on reverse side)

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DIV. OF OIL, GAS & MINING

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill, or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator:

Tom Brown, Inc.

Contact: Byron R. Gale

Phone: (303) 260-5036

3. Address and Telephone No.

555 Seventeenth Street, Suite 1850, Denver, CO 80202

4. Location of Well (Footage, T, R, M, or Survey Description)

300' FNL & 2434' FWL, Sec. 14, T30S, R24E

5. Lease Serial No.

SL-070008-A

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement Designation

Lisbon Unit

8. Well Name and No.

Lisbon Unit B-614A

9. API Well No.

43-037-31351

10. Field and Pool, or Exploratory Area

Lisbon

11. County or Parish, State

San Juan, Utah

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input checked="" type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (start/resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input checked="" type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with the BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, A form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

THE LISBON B-614A WAS RECOMPLETED FROM THE McCRACKEN TO THE MISSISSIPPIAN DURING NOVEMBER OF 1999. DUE TO MINOR COMPLICATIONS DURING THE 11/99 RECOMPLETION WITH SETTING THE PACKER AND SWABBING LOAD BACK, PERFORATION PLUGGING IS A CONCERN. TOM BROWN, INC. INTENDS TO RE-PERFORATE THE EXISTING MISSISSIPPIAN INTERVAL, ACIDIZE, AND RETURN THE WELL TO PRODUCTION (SEE ATTACHED PROCEDURE AND WELLBORE SCHEMATIC).

CONDITIONS OF APPROVAL ATTACHED

14. I hereby certify that the foregoing is true and correct

Name (Printed/Typed)

Byron R. Gale

Title

Operations Engineer

Signature

Date

04/04/2000

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Assistant Field Manager,
Division of Resources

Date

4/12/2000

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

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Re-perforate Mississippian
Tom Brown, Inc.
Lisbon B-614A
SL-070008-A
Lisbon Unit
Section 14, T30S, R24E
San Juan County, Utah

CONDITIONS OF APPROVAL

1. Notify Jeff Brown in the BLM Monticello Field Office at 435-587-1525 at least 24-hours prior to commencing re-perforation operations.
2. Within 30-days of finishing the re-perforation work, submit a subsequent report that describes the work that was accomplished.

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Lisbon B-614A Workover Procedure
300' FNL, 2434' FWL, Sec. 14, T30S, R24E
San Juan County, Utah

Leadville Zone Clean-up:

[Consider hot-oiling tubing prior to job.]

1. Notify BLM. Inspect anchors. Set frac tanks for flowback. RU H₂S safety equipment.
2. MIRU workover rig. Hold pre-job safety meeting.
3. Blow down well. Kill well with 2% KCl water.
(Note: Keep casing loaded throughout job to keep well dead and prevent casing collapse. Paradox Salt from 4,456' to 8,112'.)
4. ND tree. NU 7-1/16" 3,000# BOPE.
5. Release Baker model R-3 DG packer @ +/- 8,450'. TOO H w/ 2-7/8" 6.5# L-80 EUE 8rd tubing. Redress model R pkr to run back in.
6. RU WL. Swab water to minimal FL for BHP. RIH and re-perforate Mississippian w/ 4 JSPF, 90 deg phasing using 4" debris-less casing guns with 23g charges as follows: (Correlate to Schlumberger Borehole Compensated Sonic Log run 6/29/88.)

8,434' – 8,464'

8,472' – 8,546'

8,576' – 8,596'
7. PU and TIH w/ Baker model R-3 DG packer on inspected 2-7/8" tubing. Set packer @ 8,375'.
8. RU acid equipment. Open packer bypass, spot 6,000 gal 15% SWIC HCl w/ nitrogen, ball sealers, and additives per attached recommended procedure. Close bypass and breakdown perfs. Flush to top of perforations and flow back until load recovered.
9. Load backside w/ inhibited packer fluid from surface. Pressure test casing and packer to 1,000#.
10. ND BOPE. NU tree.
11. Swab well in. RTP. RDMO.

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NOV 18 1999

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry a different reservoir.
Use "APPLICATION FOR PERMIT -" for such proposals

SUBMIT IN TRIPLICATE

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

TOM BROWN, INC

(303)260-5000

3. Address and Telephone No.

555 17th STREET, STE 1850, DENVER, CO 80202-3918

4. Location of Well (Footage, Sec., T., R., m., or Survey Description)

300' FNL & 2434' FWL, Sec. 14, T30S, R24E

5. Lease Designation and Serial No.

SL-070008-A

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

McCracken Unit

8. Well Name and No.

Lisbon #B-614A

9. API Well No.

43-037-31351

10. Field and Pool, or Exploratory Area

Lisbon

11. County or Parish, State

San Juan, Utah

12. **CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION

☒ Notice of Intent
☐ Subsequent Report
☐ Final Abandonment Notice

TYPE OF ACTION

☐ Abandonment
☒ Recompletion
☐ Plugging Back
☐ Casing Repair
☐ Altering Casing
☐ Other

☐ Change of Plans
☐ New Construction
☐ Non-Routine Fracturing
☐ Water Shut-Off
☐ Conversion to Injection
☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

PLUG BACK McCRACKEN AND RECOMPLETE TO MISSISSIPPIAN
(SEE ATTACHED PROCEDURE)

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1999 NOV -8 P 11

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BUREAU OF LAND MANAGEMENT

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14. I hereby certify that the foregoing is true and correct

Signed

Don R. Malle, P.E.

Title **Operations Engineer**

Date **11/03/99**

(This space for Federal or State office use)

Approved by

William H.

Title

**Assistant Field Manager,
Division of Resources**

Date

11/15/99

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*See Instruction on Reverse Side

CONDITIONS OF APPROVAL ATTACHED

ASSET GROUP: PB/RM
FIELD: Lisbon
LEASE/UNIT: Lisbon Unit
COUNTY: San Juan

SPIRIT ENERGY 76
New Name. Same Spirit.
A Business Unit of Unocal

DATE: Apr. 30, 1998
BY: M.C. Phillips
WELL: B-614A
STATE: Utah

SPUD DATE: 5/18/88
COMP. DATE:
STATUS: Producing

KB = 6,866'
Elevation = 6,849'
TD = 9,097'
PBTD = 9,040'

CURRENT

9-5/8" @ 1036'. 36# K-55, ST&C csg. Cmt'd w/435 sx. Cmt'd Circ.

Tubing	2-7/8" L-80, 8rd eue	279jts	8,748.40'
Packer	Mdl "R" DG Pkr	1	6.70'
Total			8,755.10'
			17.00'
			8,772.10'

DV Tool @ 8,105'

McCracken Perforations

Perfs 8,852-8,876'. Open.
Perfs 8,882-8,888'. Open.
Perfs 8,904-8,932'. Open.

5-1/2" @ 9,091'. 17#, SS-95, K-55 LT&C csg. Cmt'd 2 stages 390sx, FB 1130sx thru DV @ 8,105'.

TD 9097'.

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**Lisbon B-614A Recompletion Procedure
300' FNL, 2434' FWL, Sec. 14, T30S, R24E
San Juan County, Utah**

Recomplete from McCracken to Mississippian:

1. Notify BLM. Inspect anchors. Set frac tanks for flowback. RU H₂S safety equipment.
2. MIRU workover rig. Hold pre-job safety meeting.
3. Blow down well. Kill well with 2% KCl water.
(Note: Keep casing loaded throughout job to keep well dead and prevent casing collapse. Paradox Salt from 4,456' to 8,112'.)
4. ND tree. NU 7-1/16" 3,000# BOPE. Pressure test backside to 1000# for 30 min.
5. Hot oil tubing. Release Baker model R-3 DG packer @ 8,786'. TOO H w/ 2-7/8" 6.5# L-80 EUE 8rd tubing. LD gas lift equipment. Redress model R pkr to run back in.
6. RU WL. RIH w/ CIBP and set in 5-1/2", 17# S-95 casing at 8,770'.
7. RIH w/ Computalog PND-S tool and log from PBTD to 8,000'.
8. RIH and perforate Mississippian w/ 2 JSPF, 90 deg phasing using 4" debris-less casing guns with 23g charges as follows: (Correlate to Schlumberger Borehole Compensated Sonic Log run 6/29/88.)

8,434' – 8,464'
8,472' – 8,546'
8,576' – 8,596'
9. PU and TIH w/ Baker model R-3 DG packer on inspected 2-7/8" tubing. Set packer @ 8,365'.
10. RU acid equipment. Open packer bypass, spot 12,000 gal 15% SWIC HCl w/ additives. Close bypass and breakdown perms. Flush to top of perforations and flow back until load recovered.
11. Load backside w/ inhibited packer fluid from surface. Pressure test casing and packer to 1,000#.
12. ND BOPE. NU tree.
13. Swab well in. RTP. RDMO.

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Plug Back McCracken and Recomplete in the Mississippian
Tom Brown, Inc.
Lisbon B-614A
SL-070008-A
McCracken Unit
Section 14, T30S, R24E
San Juan County, Utah

CONDITIONS OF APPROVAL

1. Notify Jeff Brown in the BLM Monticello Field Office at 435-587-1525 at least 24-hours prior to commencing recompletion operations.
2. If this procedure is successful, within five days of establishing production from the new reservoir (Mississippian), notify this office of such in writing.
3. Within 30-days of finishing the recompletion work, submit a *Well Completion or Recompletion Report and Log* (form 3160-4) to this office.

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Bond Cement Log Gamma Ray CCL

can be viewed by going to our web site
www.ogm.utah.gov

Go to the

Oil & Gas Program

Well Data Search

Enter the Oil and Gas Information System

Using the bar on the top of the screen

Click on

Well Logs

Search Well Logs

Click on Use Comma for Multiples and type

4303731351 – Lisbon Unit B-614A

Click on Submit

Click on View or Download

B-814
OFFSET WELL COMPLETION DATA
REVISED: June 15, 2004

Injection Zone: 8476'-8650'

WELL	SURFACE CASING				PRODUCTION CASING			
	SIZE	DEPTH	CEMENT AMOUNT	CEMENT TOP	SIZE	DEPTH	CEMENT AMOUNT	ESTIMATED CEMENT TOP
B-814 SI 30082 ✓	95/8", 43.5#	1003'	450sx 50/50 Poz 150sx "C"	Circ to surface	51/2", 17# J-55, N-80	9450'	900 sx Halcolite 150sx "C"	5170'
C-814 P&A 76248	103/4", 40.5#	1006'	475sx 50/50 Poz 160sx Neat cmt	Circ to surface	51/2", 17#	9191'	700sx 50/50 Poz 50sx, Neat cmt	6023'
B-614 16468 PRODUCING ☀	133/4" 48#	1245'	565sx, 50/50 Pozmix,	Circ to surface	9 5/8", 36#&40# J- 55 7", N-80,	4450' 9018	850sx, 125sx	5800' Integrity Would not hold 1000' for 30 min on 3 occasions in 6/2003
B-614A SI 31351 ✓	95/8", 36#	1036'	435sx	Circ to surface	51/2", 17#	9091'	1520 sx	4434' OK CBL is acceptable but no transit time occur whipstock (what is 3775' integrity of line top of whipstock. What is object in window casing 3600' Possible casing leak + poor condition 9/1985
D-715 P&A 16252 ✓	103/4", 40.5#	750"	375 sx, Pozmix	Circ to surface	51/2" 15.5 7 17#	8885'	1150sx Collapse Casing @ ~ 6250-6300	3775' integrity of line top of whipstock. What is object in window casing 3600' Possible casing leak + poor condition 9/1985
A-814 P&A 16238 ✓	10 3/4", 40.5#	975'	540 sx	Circ to surface	51/2", 17#	9015'	125sx 2300sx	3600' Possible casing leak + poor condition 9/1985

CBL (2004) OK

CBL (1960) only
CBL (1965) No CBL

CBL (1988)

CBL (whipstock) No
CBL (1965) No
CBL (1962) No

Tight spots in Csg.
6860-7174

No Review (per R649-5-2-2.11) of Mech. cond. of each well, only casing diagram + cement/csg. summary/completion info. No current status or statement of the mechanical condition of the equipment to assure that they present no conduit for the vertical migration of injectate. OK 7/28/04

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Tom Brown, Inc.

**Lisbon Gas Plant
Moab, Utah****SUBJECT****Sulfur Enrichment & Injection Project
Project Description – Pipeline & Wellsite
The B-624 is the existing Acid Gas disposal well
The B-814 is the Proposed Backup Acid Gas Disposal Well****SUMMARY:**

This memorandum provides a description of the Sulfur Enrichment & Injection processing facility (SEI unit) for the Lisbon Gas Plant with emphasis on the pipeline and wellsite equipment.

Wellstream gas from the producing wells in the Lisbon field flows to the Lisbon Gas Plant for processing. The first processing step is removal of H₂S (1.1%) and CO₂ (27%) using a common “MDEA” amine treating facility. The MDEA facility produces a product stream containing the sweet gas components and nitrogen; which goes on for further processing in the plant. The waste byproduct stream from the MDEA unit is composed of 4% H₂S plus CO₂ which becomes the feed stream for the downstream Flexsorb SEI unit.

The SEI Unit utilize Exxon-Mobil’s proprietary FLEXSORB SE amine solvent to selectively enrich the feed gas from the upstream MDEA amine unit (4% H₂S) to produce an even more concentrated product stream (50% H₂S), while minimizing the pickup of carbon dioxide (CO₂). The SEI unit is designed to remove the hydrogen sulfide (H₂S) in the feed gas and concentrate it for disposal via underground injection. Sulfur contained in the inlet gas will be injected back into the subsurface reservoir from which it originated instead of being converted into liquid sulfur (current operations). The H₂S-rich gas from the SEI unit will be compressed to 1500 psig then injected into the Mississippian formation in well B-624. The B-814 well will serve as a back up in the event of problems in well B-624. The CO₂-rich treated gas from the SEI unit (what is left after most of the H₂S is removed) is incinerated and released to atmosphere. The magnitude of SO₂ emissions to the atmosphere will remain unchanged with the SEI unit (360 lb/hour SO₂).

ECONOMIC JUSTIFICATION:

The purpose of the proposed B-814 SEI is to backup for the existing B 624 acid gas injection well. The existing B 624 well was developed to remove the sulfur recovery unit. The Selectox Sulfur Recovery facility and BSR tail gas conditioning facility (SRU), is bypassed, shut down and is for sale. Justification for the investment required to build the SEI unit reduction in operating costs, reduction in fuel gas consumption, improved operating run time, and simplified operations.

PROCESS FLOW DISCUSSION:

The feed to the SEI unit (and sulfur unit at present) is a gas that comes from the upstream MDEA unit and contains about 4 mole % H₂S, 91 mole % CO₂, 4% water and other trace compounds (wet basis). The design SEI unit feed flow rate is 14.0 MMSCFD at about 12 psig, which

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originates from 50 MMSCFD plant wellstream inlet gas. The feed gas is contacted 250 gallons/minute of "lean" FLEXSORB SE amine solvent; which is a proprietary gas-treating agent that was developed by the ExxonMobil Research and Engineering Company for selective H₂S removal. The treated gas exiting the contactor (absorber), about 12.9 MMSCFD, is mostly CO₂ (over 93%) and water (6%) but contains a small amount of residual H₂S. The treated gas flows to the thermal incinerator where it is heated to 1500 deg F then released to the atmosphere. The amount of H₂S that may be left in the treated gas is closely regulated by the existing air quality emission permit for the Lisbon plant. The "rich" FLEXSORB SE solvent exiting the absorber is regenerated in the FLEXSORB regenerator thereby releasing the "H₂S-rich" gas; which is the feed to the compressors. Heat is input into the bottom of the regenerator, 14 MMBTU/hour, by the reboiler, which uses heat medium oil to indirectly heat the bottom of the tower to around 265 deg F. Steam rises up the regenerator thereby stripping the H₂S and CO₂ from the rich FLEXSORB SE solvent. The H₂S and CO₂, exits the top of the regenerator at a temperature of about 230 deg and 19 psig. The H₂S-rich gas, 1.3 MMSCFD, is water saturated and is composed of about 42% H₂S, 54% CO₂ and 4% water in the warmer months of summer. The composition and flow rate of the H₂S-rich gas varies with ambient temperature and operating conditions, with the H₂S concentration reaching 55% in cooler weather while corresponding CO₂ and water content decreases to 43% and 2%. The flow rate decreases to 1.1 MMSCFD during the cooler weather. The composition and flow rate changes with ambient temperature because the selectivity of the FLEXSORB SE amine solvent to H₂S in the feed gas from the MDEA unit is a function of inlet feed gas and amine temperature. In cooler weather, the FLEXSORB SE amine solvent "picks up" or absorbs less CO₂ than it does at warmer temperature in the contactor.

THE FLEXSORB AMINE ENRICHMENT FACILITY:

The major SEI unit enrichment facility equipment is similar to a typical amine gas-treating unit, of which there are thousands in service around the world. A detailed description of this process is covered separately.

THE COMPRESSION FACILITY:

The H₂S-rich gas, about 1.3 MMSCF/day (summer operation), from the FLEXSORB enrichment facility flows to the suction of two identical 300 HP electric-driven compressors operating in parallel at 12 psig and 110 deg F suction conditions. SEI facility feed gas (4% H₂S from the MDEA facility) is bypassed around the SEI unit and blended with the H₂S-rich gas to maintain the flow to the suction of the compressors at a total rate up to 1.7 MMSCF/day; which is the rated capacity of both compressors operating simultaneously. If the H₂S-rich gas flow rate is 1.3 MMSCF/day then 0.4 MMSCF/day of SEI facility feed gas or "bypass gas" will be added (blended together) to get the total flow rate of 1.7 MMSCF/day to the compressors. The compressors have five separate stages of compression, cooling, and scrubbing which increases process gas pressure to about 1500 psig at the discharge (normal operating pressure). The design pressure for the compressors is 2165 psig.

The H₂S-rich gas changes phase as a result of compression, and at 1200 psig (and higher) becomes more dense than a gas, but not as dense as a liquid which is a state commonly referred to as "dense phase" or "super-critical" fluid. The fifth stage of cooling is normally bypassed thereby allowing the dense fluid to enter the pipeline to well B-624 or B-814 "hot" (200 to 300

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degrees F). The "hot", "dense phase" "high H₂S" gas flows through the pipeline to the wellsite, into the wellbore and then into the Mississippian reservoir to a depth of 9,000 ft below surface. Water is condensed during the compression/cooling stages and is collected in the compressor scrubbers. This "water of compression" flows to the existing Lisbon plant sour water disposal system where it is injected back into the Mississippian reservoir from which it originated; along with the produced water from the wells.

The compression facility contains instrumentation, piping and safety systems that serve to ensure that no H₂S is released to the atmosphere. The compressors are sophisticated packaged units that are designed and manufactured specifically for this project. Metallurgy of the compressors is stainless steel wherever the H₂S rich gas is water saturated and at lower temperature and pressure. The various stages of compression, cooling, and scrubbing cause significant dehydration of the H₂S-rich gas (discussed in detail below). The gas is dehydrated to the extent that the last stage of compression and the pipeline to the wells is no longer stainless steel, but may instead be constructed using conventional carbon steel metallurgy.

There are numerous pressure, temperature and fluid level instruments throughout the compression facility that are monitored and controlled by a "programmable logic controller" (PLC). There are also six H₂S monitors positioned around the compression facility that can detect very small concentrations of H₂S in the air (a ppm level). Emergency shut down (ESD) valves are located at all inlets and outlets to the compression facility and are controlled by the PLC and also by Lisbon Plant's main "distributive computer control system" (DCS). The entire compression facility can be isolated by the ESD valves based on alarms from the PLC, the plant DCS, or locally by the area operator. The H₂S-rich gas in the process can be diverted or "blown down" to the Lisbon Plant flare if necessary. The entire compressor facility and downstream pipeline to the injection well can be swept clear of any H₂S by closing off the H₂S rich gas inlet and directing sweet, dry methane fuel gas from the Lisbon Plant into the system.

THE "PROCESS" PIPELINE:

The process pipeline to the backup well B-814 will be the same as the in-service pipeline to B-624. It will transport the "H₂S rich" or "process" fluid and will be new 2 inch schedule 160 with 2" fiberglass insulation. A pressure control valve in the "process" pipeline, located near the well B-814 wellhead, will maintain pipeline pressure (i.e. compressor discharge pressure) at the normal operating pressure of 1500 psig. The design pressure of the carbon steel line is 2165 psig at 350 deg F; the compressors will shut down on high pressure at 1950 psig. Backup relief valve pressure protection is afforded at the 2165 psig level.

Under normal conditions there will be no free water in the pipeline therefore little corrosion is anticipated. However, a contingency corrosion allowance in excess of 0.250" has been provided. The process pipeline will originate at the ESD valves on the discharge of the compressor and terminate at the master valve on the wellhead. Connected to the process pipeline is the blowdown to flare connected to the Lisbon plant flare at a location near the compressors? The "blowdown to flare" contains an ESD valve that may be opened to allow the contents of the "process" pipeline to safely flow to flare. Corrosion inhibitor may be injected at the inlet to the "process" pipeline or at the wellsite if necessary. A corrosion coupon will be installed inside the

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pipeline near well B-814 that can be extracted and examined periodically to quantitatively evaluate the extent of metal loss due to corrosion, if any.

There are pressure, temperature and other instruments located at the B-814 Wellsite that are monitored and controlled by a "programmable logic controller" (PLC) at the wellsite. The wellsite PLC will communicate with plant's DCS system using a SCADA communications system. The pressure and temperature of the process pipeline will be measured at the pipeline entrance and also on the wellsite. The PLC system will continuously monitor key process variables on the wellsite and will alarm the Plant's control operator if operations go outside of normal boundaries.

THE WELLSITE:

The SEI injection equipment at the wellsite consists of an indirect fired heater (1 MMBtu/hr), a pressure control valve, an ESD valve, plus pressure and temperature instruments located both upstream and downstream of the pressure control valve. The line heater is to be located from B-624 and is identical to the line heaters at many of the Mississippian producing wells in the area and will heat the H₂S-rich fluid to ensure that water does not condense and hydrates do not form downstream of the wellsite pressure control valve, in the wellhead, or in the vertical tubing string in the wellbore (see discussion below).

After the H₂S-rich fluid is heated in the line heater, it will flow across the wellsite pressure control valve, decreasing the pressure from about 1350 psig to the surface pressure required to inject the fluid into the reservoir via the wellbore. Note that the pressure drop in the "process" pipeline from the compressor (1500 psig) to the wellsite (1350 psig) is about 150 psig. The pressure at the wellsite upstream of the pressure control valve is maintained at 1350 psig which is 150 psig above the "critical pressure" of the process fluid (1200 psig) at all times to prevent condensation of liquid from the process gas. The pressure downstream of the wellsite pressure control valve is the surface pressure required for injection into the wellbore, which is expected to be 900 to 1200 psig initially. Over time the wellhead surface injection pressure should decrease as the Mississippian reservoir pressure is depleted. When the pressure of the process fluid decreases across the wellsite pressure control valve, the fluid temperature is decreased via the physical phenomena of JT expansion. The pressure and temperature drop is measured continuously and then moderated or controlled by heat input upstream of the valve via the line heater. Downstream of the pressure control valve, the fluid will flow into the wellhead valves of B-814 then into the vertical tubing stream and finally into the perforations in the Mississippian reservoir at a depth of about 9,000 ft below the surface.

THE INJECTION WELL:

The annular pressure on well B 814 (the space between tubing and casing) will be measured by a pressure transmitter and monitored by the PLC control system. In the event of casing/tubing communication, the annular pressure should increase to a point, which would trigger an operator alarm and closure of the wellsite ESD. A separate discussion of the subsurface equipment configuration of well B-814 and a wellbore diagram depicting tubulars is included in the permit

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application. Well B-814 has shut in for 10 years because of increased water production. There is sufficient space on the existing wellsite for the new SEI injection equipment.

The safety of the wellsite is ensured by the engineering design features discussed above. However, there will also be one H₂S monitor near the B-814 wellhead and a second H₂S monitor placed about 1,000 ft from the wellsite along the entrance road. These two monitors will check for H₂S releases to the atmosphere. Information from these monitors (and the other instruments on the wellsite) will be monitored by the wellsite PLC. The ESD valves (compressor discharge and/or at the wellsite) can be closed if H₂S is detected by the monitors on the wellsite. When injection into well B-814 is stopped, the compressors, pipeline and the well's tubing string can be purged with methane fuel gas. An "emergency response plan / public protection plan" is been prepared by TBI and will be submitted to the Bureau of Land Management.

CORROSION PREVENTION:

One peculiar characteristic of the "H₂S rich" gas is that its ability to hold water without condensation passes through a minimum in the range of 400 to 1000 psig. At the final discharge and pipeline operating pressure of 1500 psig it can hold more water without experiencing condensation than it can in the lower pressure range. This allows dehydration to occur during the acid gas compression step since the third and fourth stages of compression fall in the range of the minimum water content. Typically, the temperature and pressure at the outlet of the fourth stage compressor discharge cooler determines the water content of the H₂S rich gas entering the pipeline to the injection well.

Corrosion of the 2" schd 160 pipeline containing the H₂S rich fluid is controlled by dehydrating the gas through the compression facility and then operating the process such that free water will not condense anywhere in the piping. There will be no corrosion if there is no free water. The water contained in the high H₂S fluid is reduced from almost 1000 lb H₂O per MMSCF of gas to less than 200 lb H₂O per MMSCF of gas by five stages of compression, cooling and scrubbing in the compression facility. The dehydrated, high pressure, dense phase fluid exiting the compression facility is hot (greater than 200 deg F) and is not allowed to cool to the temperature where water can condense (the water dewpoint); anywhere along the way to the reservoir. The pipeline will be covered with external insulation from the compression facility to the wellsite. The insulation will prevent the high H₂S dense phase fluid from cooling to the "water dewpoint" temperature. Temperature gauges will be installed along the pipeline to verify that adequate temperature is maintained at all times. Upon reaching the wellsite, the dense phase fluid is heated to over 100 deg F in the indirect fired heater. The "hot" dense phase fluid subsequently flows across the pressure control valve then into the wellbore. The fluid will cool due the pressure drop across the control valve but the line heater will be operated such that the temperature downstream of the control valve is always greater than the "water dewpoint". The fluid then enters the wellbore where it is heated by the ground as it flows deeper into the subsurface. The temperature of the Mississippian carbonate reservoir (at a depth of about 9,000 ft) where the fluid will be injected is about 140 deg F which is well above the "water dewpoint". All piping will be coated with a "corrosion inhibitor fluid" prior to commencing injection; however, continuous injection of corrosion inhibitor is not necessary.

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JUN 17 2004

Sulfur Re-injection Project

Pipeline/Wellsite Safety Features:

- ✓ 6 H₂S monitors around compressor facility
- ✓ 2 H₂S monitors at wellsite
- ✓ Safety shut down valves at compressor discharge & wellsite
- ✓ Process pipeline will be pressure monitoring.
- ✓ Corrosion coupon at wellsite to measure rate of metal loss
- ✓ Displace compressor & pipeline with fuel gas as needed
- ✓ Compressor & pipeline blowdown to flare as needed
- ✓ Controlled, gated access to pipeline corridor & wellsite
- ✓ Pressure & temperature monitors at start & end of pipeline & at wellhead
- ✓ Methanol and corrosion inhibitor injection at compressor & wellsite
- ✓ Design and operation to prevent condensation of free water anywhere. Pressure control valve on process pipeline near wellhead.
- ✓ Process gas discharge from compressors into pipeline is hot
- ✓ Line heater at wellsite to maintain process fluid temperature
- ✓ Pressure monitor on well B-814 casing/tubing annulus
- ✓ Insulation on surface pipeline from plant to wellsite
- ✓ Capability to pump produced water into well B-624 if needed.
- ✓ 24 hour/day, 365 day/year operator supervision by Lisbon Plant personnel
- ✓ Continuous supervision of key process variables by SCADA & DCS computer control systems.

RECEIVED

JUN 17 2004

Div. OF OIL, GAS & MINING

BEFORE THE DIVISION OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH

IN THE MATTER OF THE	:	
APPLICATION OF TOM BROWN, INC.	:	NOTICE OF AGENCY ACTION
FOR ADMINISTRATIVE APPROVAL OF	:	
THE LISBON B-814 WELL LOCATED IN	:	CAUSE NO. UIC 314.1
SECTION 14, TOWNSHIP 30 SOUTH,	:	
RANGE 24 EAST, SAN JUAN COUNTY,	:	
UTAH, AS A CLASS II WASTE GAS	:	
DISPOSAL WELL	:	

THE STATE OF UTAH TO ALL PERSONS INTERESTED IN THE ABOVE ENTITLED
MATTER.

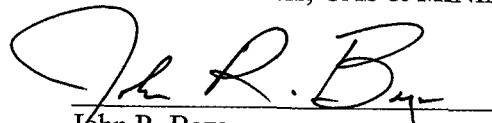
Notice is hereby given that the Division of Oil, Gas and Mining (the "Division") is commencing an informal adjudicative proceeding to consider the application of Tom Brown, Inc. for administrative approval of the well, located in Section 24, Township 30 South, Range 24 East, San Juan County, Utah, for conversion to a Class II Disposal well. This well is located in the Lisbon Unit. The adjudicative proceeding will be conducted informally according to Utah Admin. Rule R649-10, Administrative Procedures.

Selective zones in the Leadville Limestone will be used for waste gas re-injection. The operator proposes to inject a gas mixture of water, CO₂ and H₂S at a maximum requested injection pressure of 1,200 psia and injection rate of 1.3 MMCF/D.

Any person desiring to object to the proposed application or otherwise intervene in the proceeding, must file a written protest or notice of intervention with the Division within fifteen days following publication of this notice. The Division's Presiding Officer for this proceeding is John R. Baza, Associate Director at PO Box 145801, Salt Lake City, Utah 84114-5801, phone number (801) 538-5340. If such a protest or notice of intervention is received, a hearing will be scheduled in accordance with the aforementioned administrative procedure rule. Protestants and/or interveners should be prepared to demonstrate at the hearing how this matter affects their interests.

Dated this 2nd day of July, 2004.

STATE OF UTAH
DIVISION OF OIL, GAS & MINING


John R. Baza
Associate Director

**Tom Brown, Inc.
Lisbon B-814
Cause No. UIC 314**

Publication Notices were sent to the following:

Tom Brown, Inc.
PO Box 2608
Midland TX 79702

Via E-Mail and Facsimile (435) 587-2277
San Juan Record
PO Box 879
Monticello, UT 84535-0879

via E-Mail and Facsimile (801) 237-2577
Salt Lake Tribune
PO Box 45838
Salt Lake City, UT 84145

Moab District Office
Bureau of Land Management
82 East Dogwood
Moab UT 84531

San Juan County Planning
117 South Main
Monticello UT 84535

Dan Jackson
US EPA Region VIII, Suite 5000
999 18th Street
Denver, CO 80202-2466



For Julie Carter
Executive Secretary
July 6, 2004

From: "naclegal " <naclegal@mail.nacorp.com>
To: <earlenerussell@utah.gov>
Date: 7/6/04 5:39PM
Subject: Thank you. We have received your legal notice and will process it shortly. If you have an

Thank you. We have received your legal notice and will process it shortly. If you have any questions, please call 801-237-2720.

TRANSACTION REPORT

P. 01

JUL-06-2004 TUE 05:46 PM

FOR: OIL, GAS & MINING

801 359 3940

DATE	START	RECEIVER	TX TIME	PAGES	TYPE	NOTE	M#	DP
JUL-06	05:46 PM	2372577	43"	2	SEND	OK	644	

TOTAL : 43S PAGES: 2



State of Utah

Department of
Natural Resources

ROBERT L. MORGAN
Executive Director

Division of
Oil, Gas & Mining

LOWELL P. BRAXTON
Division Director

OLENE S. WALKER
Governor

GAYLE F. McKEACHNIE
Lieutenant Governor

July 6, 2004

SENT VIA E-MAIL AND FAX (801) 237-2577

Salt Lake Tribune
PO Box 45838
Salt Lake City, UT 84145

RE: Notice of Agency Action - Cause No. UIC 314

Gentlemen:

Enclosed is a copy of the referenced Notice of Agency Action. Please publish the Notice, once only, as soon as possible. Please send proof of publication and billing to the Division of Oil, Gas and Mining, Suite 1210, PO Box 145801, Salt Lake City, Utah 84114-5801.

Sincerely,



State of Utah

Department of
Natural Resources

ROBERT L. MORGAN
Executive Director

Division of
Oil, Gas & Mining

LOWELL P. BRAXTON
Division Director

OLENE S. WALKER
Governor

GAYLE F. McKEACHNIE
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Sincerely,

Carlene Russell
for Julie Carter
Executive Secretary

encl.

From: Earlene Russell
To: San Juan Record
Date: 7/6/04 5:39PM
Subject: UIC 314

Please advise me when the publication date will be.

Thanks.

TRANSACTION REPORT

P. 01

JUL-06-2004 TUE 05:50 PM

FOR: OIL, GAS & MINING

801 359 3940

DATE	START	RECEIVER	TX TIME	PAGES	TYPE	NOTE	M#	DP
JUL-06	05:49 PM	14355872277	1' 00"	2	SEND	OK	647	

TOTAL : 1M 0S PAGES: 2



State of Utah

Department of
Natural Resources

ROBERT L. MORGAN
Executive Director

Division of
Oil, Gas & Mining

LOWELL P. BRAXTON
Division Director

OLENE S. WALKER
Governor

GAYLE F. McKEACHNIE
Lieutenant Governor

July 6, 2004

Sent via Email and Fax (435) 587-2277

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PO Box 879
Monticello, UT 84535-0879

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Sincerely,



State of Utah

Department of
Natural Resources

ROBERT L. MORGAN
Executive Director

Division of
Oil, Gas & Mining

LOWELL P. BRAXTON
Division Director

OLENE S. WALKER
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Sincerely,

A handwritten signature in cursive script that reads "Carlene Russell".

for Julie Carter
Executive Secretary

encl.

From: "NAC LEGAL" <naclegal@nacorp.com>
To: "Earlene Russell" <earlenerussell@utah.gov>
Date: 7/7/04 8:52AM
Subject: Re: UIC 314

Earlene,
Your ad is set to go...please check the paper on July 10.

Thank you,

Lynn Valdez
Newspaper Agency Corp.
P. O. Box 45838
Salt Lake City, UT 84145
Ph. (801) 237-2720
Fax (801) 237-2776

----- Original Message -----

From: "Earlene Russell" <earlenerussell@utah.gov>
To: <naclegal@nacorp.com>
Sent: Tuesday, July 06, 2004 5:38 PM
Subject: UIC 314

Please advise me when the publication date will be. Thanks.

From: Bill Boyle <sjrnews@frontiernet.net>
To: "Earlene Russell" <earlenerussell@utah.gov>
Date: 7/7/04 6:45AM
Subject: Re: UIC 314

The legal notice will run as directed.

Thank you,
Bill Boyle
San Juan Record

On Tuesday, July 6, 2004, at 05:39 PM, Earlene Russell wrote:

> Please advise me when the publication date will be.
>
> Thanks.
>
> <paper1.doc>

Newspaper Agency Corporation

143 SOUTH MAIN ST.

P.O. BOX 45838

SALT LAKE CITY, UTAH 84145

FED. TAX I.D.# 87-0217663

The Salt Lake Tribune

DESERET
Morning News

CUSTOMER'S
COPY

PROOF OF PUBLICATION

CUSTOMER NAME AND ADDRESS	ACCOUNT NUMBER	DATE
DIV OF OIL-GAS & MINING 1594 W NORTH TEMP #1210 P.O. BOX 145801 SALT LAKE CITY, UT 84114	D5385340L-07	07/10/04

NEW YEAR

RECEIVED

JUL 27 2004

DIV. OF OIL, GAS & MINING

COPY

ACCOUNT NAME	
DIV OF OIL-GAS & MINING	
TELEPHONE	INVOICE NUMBER
801-538-5340	TL8202HRMD1
SCHEDULE	
START 07/10/04 END 07/10/04	
CUST. REF. NO.	
CAPTION	
BEFORE THE DIVISION OF OIL, GA	
SIZE	
55 LINES 2.00 COLUMN	
TIMES	RATE
1	1.25
MISC. CHARGES	AD CHARGES
.00	142.50
TOTAL COST	
142.50	

BEFORE THE DIVISION OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH

IN THE MATTER OF THE APPLICATION OF TOM BROWN, INC. FOR ADMINISTRATIVE APPROVAL OF THE LISBON 8-814 WELL LOCATED IN SECTION 14, TOWNSHIP 30 SOUTH, RANGE 24 EAST, SAN JUAN COUNTY, UTAH, AS A CLASS II WASTE GAS DISPOSAL WELL

NOTICE OF AGENCY ACTION
CAUSE # UIC 314.1

THE STATE OF UTAH TO ALL PERSONS INTERESTED IN THE ABOVE ENTITLED MATTER.

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Selective zones in the Leadville Limestone will be used for waste gas re-injection. The operator proposes to inject a gas mixture of water, CO₂ and H₂S at a maximum requested injection pressure of 1,200 psia and injection rate of 1.3 MMCF/D.

Any person desiring to object to the proposed application or otherwise intervene in the proceeding, must file a written protest or notice of intervention with the Division within fifteen days following publication of this notice. The Division's Presiding Officer for this proceeding is John R. Baza, Associate Director at PO Box 145801, Salt Lake City, Utah 84114-5801, phone number (801) 538-5340. If such a protest or notice of intervention is received, a hearing will be scheduled in accordance with the aforementioned administrative procedure rule. Protestants and/or interveners should be prepared to demonstrate at the hearing how this matter affects their interests.

Dated this 2nd day of July, 2004.

STATE OF UTAH
DIVISION OF OIL, GAS & MINING

/s/ John R. Baza
Associate Director

8202HRMD

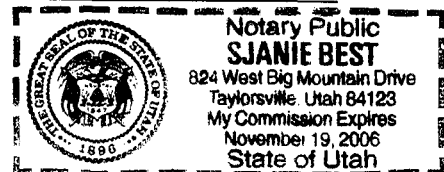
AFFIDAVIT OF PUBLICATION

AS NEWSPAPER AGENCY CORPORATION LEGAL BOOKKEEPER, I CERTIFY ADVERTISEMENT OF BEFORE THE DIVISION OF OIL, GA
DIV OF OIL-GAS & MINING WAS PUBLISHED BY THE CORPORATION, AGENT FOR THE SALT LAKE TRIBUNE AND DESERET NEW PRINTED IN THE ENGLISH LANGUAGE WITH GENERAL CIRCULATION IN IN SALT LAKE CITY, SALT LAKE COUNTY IN THE STATE OF UTAH.

PUBLISHED ON START 07/10/04 END 07/10/04

SIGNATURE Janie Best

DATE 07/10/04



THIS IS NOT A STATEMENT BUT A "PROOF OF PUBLICATION"
PLEASE PAY FROM BILLING STATEMENT.

2827/REC/GED4/NUAD401G

Newspaper Agency Corporation

143 SOUTH MAIN ST.
P.O. BOX 45838
SALT LAKE CITY, UTAH 84145
FED. TAX I.D.# 87-0217663

The Salt Lake Tribune

DESERET
Morning News

CUSTOMER'S
COPY

PROOF OF PUBLICATION

CUSTOMER NAME AND ADDRESS	ACCOUNT NUMBER	DATE
DIV OF OIL-GAS & MINING 1594 W NORTH TEMP #1210 P.O. BOX 145801 SALT LAKE CITY, UT 84114	D5385340L-07	07/10/04

NEW YEAR

RECEIVED

JUL 27 2004

DIV. OF OIL, GAS & MINING

COPY

ACCOUNT NAME	
DIV OF OIL-GAS & MINING	
TELEPHONE	INVOICE NUMBER
801-538-5340	TL8202HRMD1
SCHEDULE	
START 07/10/04 END 07/10/04	
CUST. REF. NO.	
CAPTION	
BEFORE THE DIVISION OF OIL, GA	
SIZE	
55 LINES 2.00 COLUMN	
TIMES	RATE
1	1.25
MISC. CHARGES	AD CHARGES
.00	142.50
TOTAL COST	
142.50	

BEFORE THE DIVISION OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH

IN THE MATTER OF THE APPLICATION OF TOM BROWN INC. FOR ADMINISTRATIVE APPROVAL OF THE LEBON 8-814 WELL LOCATED IN SECTION 14, TOWNSHIP 30 SOUTH, RANGE 24 EAST, SAN JUAN COUNTY, UTAH, AS A CLASS II WASTE GAS DISPOSAL WELL.

NOTICE OF AGENCY ACTION CAUSE # UIC-814.1

THE STATE OF UTAH TO ALL PERSONS INTERESTED IN THE ABOVE ENTITLED MATTER:

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Any person desiring to object to the proposed application or otherwise intervene in the proceeding must file a written protest or notice of intervention with the Division within fifteen days following publication of this notice. The Division's Presiding Officer for this proceeding is: Tom C. Brann, Assistant Director, c/o P.O. Box 45838, Salt Lake City, Utah 84145-8388. Phone number: 801-538-5340. If such a protest or notice of intervention is filed, it shall be scheduled in

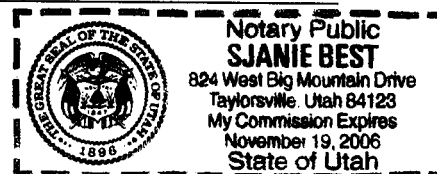
AFFIDAVIT OF PUBLICATION

AS NEWSPAPER AGENCY CORPORATION LEGAL BOOKKEEPER, I CERTIFY THAT THE ATTACHED ADVERTISEMENT OF BEFORE THE DIVISION OF OIL, GA FOR DIV OF OIL-GAS & MINING WAS PUBLISHED BY THE NEWSPAPER AGENCY CORPORATION, AGENT FOR THE SALT LAKE TRIBUNE AND DESERET NEWS, DAILY NEWSPAPERS PRINTED IN THE ENGLISH LANGUAGE WITH GENERAL CIRCULATION IN UTAH, AND PUBLISHED IN SALT LAKE CITY, SALT LAKE COUNTY IN THE STATE OF UTAH.

PUBLISHED ON START 07/10/04 END 07/10/04

SIGNATURE James Best

DATE 07/10/04

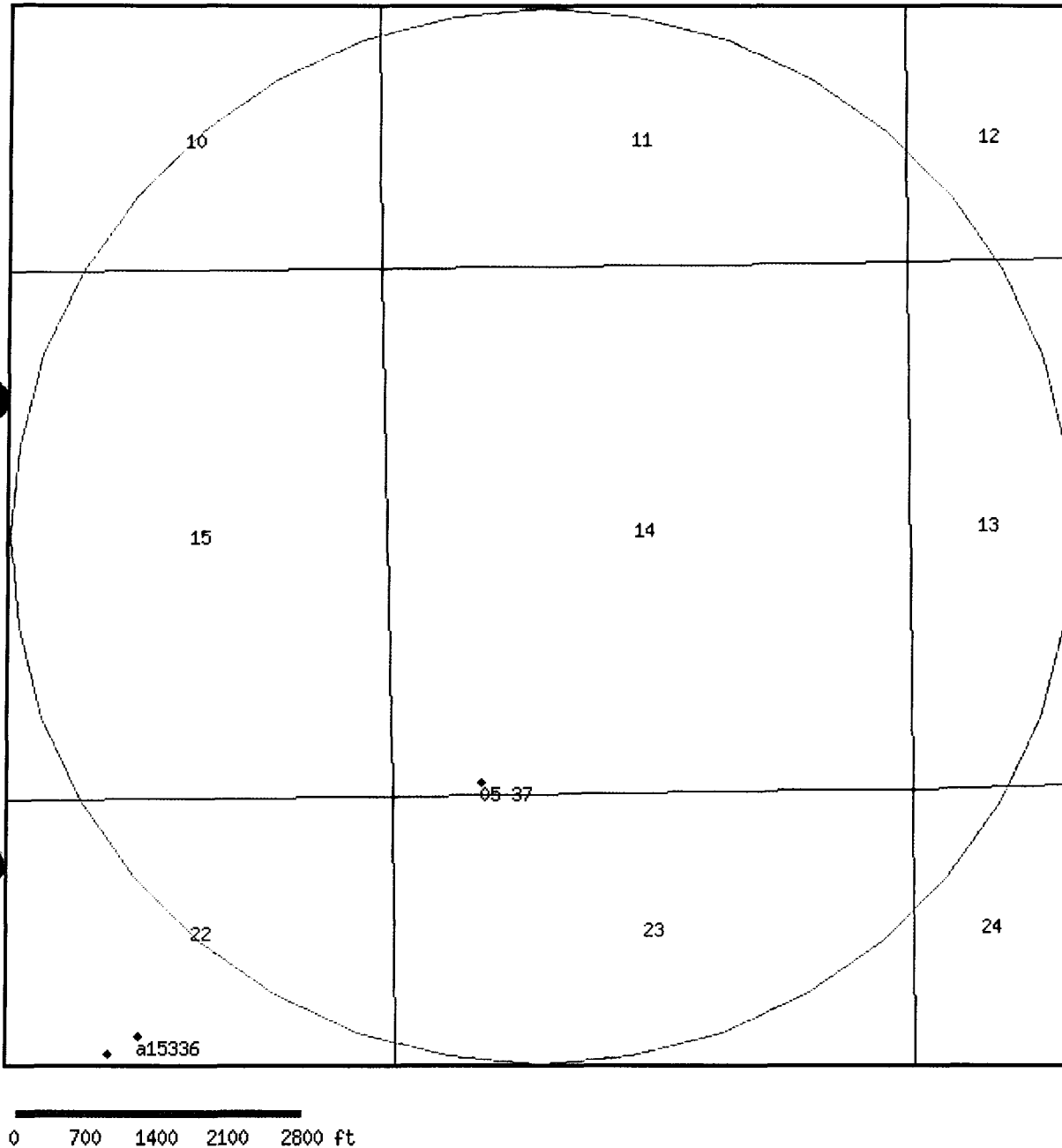


THIS IS NOT A STATEMENT BUT A "PROOF OF PUBLICATION"
PLEASE PAY FROM BILLING STATEMENT.

2827/REC/GED4/NUAD401G

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
<u>05-358</u>	Underground N2780 E2450 SW 22 30S 24E SL		P	19610715	DO	0.500	0.000	Union Oil Company of California P.O. Box 760
<u>05-37</u>	Surface N60 W4300 SE 14 30S 24E SL		P	19150730	DO	0.001	0.000	Thomas Kearns Salt Lake City UT
<u>05-409</u>	Underground N2780 E2450 SW 22 30S 24E SL		P	19620419	O	2.500	0.000	Union Oil Company P.O. Box 1611
<u>a15336</u>	Underground N2950 E2750 SW 22 30S 24E SL	<u>well info</u>	A	19891106	DO	1.000	0.000	Union Oil Company of California 3300 North Butler Avenue, Suite 200

[Natural Resources](#) | [Contact](#) | [Disclaimer](#) | [Privacy Policy](#) | [Accessibility Policy](#)



Water Rights



**SAN JUAN COUNTY
COMMISSION**

Lynn H. Stevens - Chairman
Manuel Morgan - Vice-Chairman
Ty Lewis - Commissioner
Rick M. Bailey - Administrator

July 19, 2004

John R. Baza, Associate Director
Division of Oil, Gas & Mining
State of Utah
P. O. Box 145801
Salt Lake City, Utah 84114-5801

Dear Mr. Baza:

San Juan County recommends approval of the Lisbon B-814 well located in Section 14, Township 30 South, Range 24 east, San Juan County, Utah as a Class II Waste Gas Disposal Well and subsequent gas re-injection as proposed by Tom Brown, Inc.

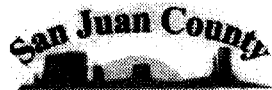
Sincerely,

San Juan County Commission
Lynn H. Stevens, Chairman

RECEIVED

JUL 21 2004

DIV. OF OIL, GAS & MINING



P.O. Box 9

Monticello, UT 84535



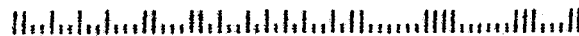
U.S. POSTAGE

0037

16 METER 710100

John R. Baza, Associate Director
Division of Oil, Gas & Mining
State of Utah
P. O. Box 145801
Salt Lake City, Utah 84114-5801

84114+5801



DIVISION OF OIL, GAS AND MINING
UNDERGROUND INJECTION CONTROL PROGRAM

**PERMIT
STATEMENT OF BASIS**

Applicant: Tom Brown, Incorporated

Well: Lisbon B - 814

Location: T30S, R24E, S14, San Juan Co. Utah

API: 4303730082

Ownership Issues:

This well is located on federal lands admin-
Management (BLM) within the Lisbon Federal Ur-
within a half mile buffer distance from the prop
Incorporated, retains a lease on the hydrocarbo
state mineral tract exists (se sw S. 14) within the
sworn Affidavit of Mailing (of the application and
particular owners, operators and surface owner

Chris
Decided after talking to
SB to 13-do letter +
and permit letter.
Also can we illustrate
the ? marks on the
SOB

7/21/04

Talked with Ron Schuyler of
Tom Brown (Encana) about waiving
the step rate test (SRT) as a
qualification for the issuance of
a Class II injection permit
for waste ("acid gas") gas disposal.
This is a possibility because the
subject well is reasonably nearby
(within 1/4 miles), injecting to the same
formation in the same stratigraphic
position (Top/Leadville ls.), on the same
structure, with the same confining
layers as the first waste gas well,
the B-624. That well had rigorous
documentary requirements placed on it. The
operator seeks a much lower injection pressure on this
2nd well.
Chris Kierst

GRAM

ing Diameter	Weight	Grade	Connection Type
?	?	?	?
9 5/8"	43.5#	N-80	?
5 1/2"	17#	J-55	?

ROGRAM

t	Number Sacks	Cement Type	Cement Yield	Cement Weight
	-	-	-	-
	450 150	50/50 POZ "C"	?	?
	900 150	Halcolite "C"	?	?

t a 50% H₂S, 50% CO₂ produced "acid gas"
rigin, the Mississippian Leadville Limestone,

DIVISION OF OIL, GAS AND MINING
UNDERGROUND INJECTION CONTROL PROGRAM

**PERMIT
STATEMENT OF BASIS**

Applicant: Tom Brown, Incorporated

Well: Lisbon B - 814

Location: T30S, R24E, S14, San Juan Co. Utah

API: 4303730082

Ownership Issues:

This well is located on federal lands administered by the Bureau of Land Management (BLM) within the Lisbon Federal Unit. There are no other landowners within a half mile buffer distance from the proposed injection well. Tom Brown, Incorporated, retains a lease on the hydrocarbon mineral estate on Section 14. A state mineral tract exists (se sw S. 14) within the half mile Area of Review (AoR). A sworn Affidavit of Mailing (of the application and associated documentation to the particular owners, operators and surface owners) has been placed in the well file.

Well Integrity:

Description of the Casings and Cement:

CASING PROGRAM

<u>String Type</u>	<u>Hole Size</u>	<u>Depth</u>	<u>Feet</u>	<u>Casing Diameter</u>	<u>Weight</u>	<u>Grade</u>	<u>Connection Type</u>
Conductor	?	?	?	?	?	?	?
Surface	?	1003'	?	9 ^{5/8} "	43.5#	N-80	?
Production	?	9450'	?	5 1/2"	17#	J-55	?

CEMENT PROGRAM

<u>String Type</u>	<u>DV Depth</u>	<u>Stage Lead/Tail</u>	<u>Cement Bottom</u>	<u>Cement Top</u>	<u>Number Sacks</u>	<u>Cement Type</u>	<u>Cement Yield</u>	<u>Cement Weight</u>
Conductor	-	-	-	-	-	-	-	-
Surface	-	-	-	Surface	450 150	50/50 POZ "C"	?	?
Production	-	-	?	5174'	900 150	Halcolite "C"	?	?

Ground Water Protection:

Tom Brown, Inc. proposes to inject a 50% H₂S, 50% CO₂ produced "acid gas" mixture into the gases' strata of origin, the Mississippian Leadville Limestone,

through an overall perforated interval from 8,476 feet to 8,650 feet' Total Depth (TD), which is an unplugged interval used in previous production operations. No good quality ground water resource is likely be encountered in that Formation near the injection well location and at that depth.

The operator asks to be permitted to inject the "acid gas" waste stream into the Formation in the Lisbon B-814 at a Maximum Allowable Surface Injection Pressure of 1,500 psig. The permitted maximum injection pressure in the B-624 is 1,960 psig, a pressure that was supported by step rate test results. They hope to inject at an average rate of 1.5 MMCFD. The injectate gas mixture will be injected "dry", that is, with all the free water removed, and at sufficiently high temperature and pressure that no water is permitted to condense. This will be done to preclude the possibility of water and H₂S combining to create a sulfide stress cracking (SSC) corrosion problem for the 1970s' era J-55 Grade production casing and the 2^{7/8}" J-55 Grade tubing and the packer. The operator has conducted phase behavior studies in order to inject the proposed gas mixture with no free water. They propose to conduct their operations to properly process the waste gas stream and maintain the necessary temperatures and pressures needed to ensure that injection will occur safely within the requisite phase envelope.

The base of moderately saline waters (encountered at about the 5,500 feet elevation) occurs over 7,500 feet higher, at about 1,000 feet of depth in the B-814 injection well. The primary confining layer above the injection zone will be more than 4,000 feet of Pennsylvanian-age Paradox Salt. The operator estimates that the proposal will eventuate the injection of a converted volume of 1.25 MMB, which is about 6% of the reservoir pore volume. A 10-year breakeven term is forecast for this phase of the operator's project, but the overall injection project life is likely to be somewhat longer. The mixture is not expected to reach any offset well bores during the remaining economic life of the field. The mixture is expected to be highly soluble in the Leadville Limestone connate water and may slightly increase the reservoir permeability, commensurately lowering injection pressure.

Analysis of the typical composite of field-produced water injectate revealed a Total Dissolved Solids (TDS) value of 76,671 mg/l. Another individual sample from the Leadville Limestone reservoir tested in excess of 110,000 mg/l TDS. The permit for this well will be issued based on a design that is intended exclusively for the injection of an acid gas stream. It will be necessary to inject the stripped produced water into another salt-water disposal well. In this area, the Leadville Limestone is not considered an Underground Source of Drinking Water (USDW; a water source containing less than 10,000 mg/l, total dissolved solids).

There are no subsurface water rights filed within a mile of the B-814 and the only other water rights filed are for surface water.

In order to support this permit application, the Operator references data generated

in support of the permit granted by the Division for "waste gas" (acid gas) disposal in the B-624 well. Among the items performed pursuant to the B-624 permit, the Operator effected:

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- A pressure falloff test. Analysis of the results indicated that both pseudo linear and pseudo radial flow regimes were encountered, that the reservoir pressure was extrapolated to 2,358 psi and that there was a permeability of 0.3 md over 52 feet of net injection zone.
- A step rate test was run and from this the fracture initiation pressure was estimated to be 5,300 psi at 5.3 BPM, which corresponds to 7,632 BWIPD. The calculated fracture gradient was 0.59 psi/ft. In addition, subsequent nodal analysis revealed that the wellbore and reservoir could conservatively accommodate the injection of 1,700 MCF/D of waste gas.

The Division agrees that, within limits, the information obtained from the cited activities on the B-624 can be used to characterize reservoir conditions in the B-814 for the support of its permit application and warrants that R649-5-2-2.9 [the Rule requirement of evidence that the operation of waste gas injection at the proposed pressure (1,500 psig) will not initiate fractures in confining strata] is waived because the proposed injection pressure is nearly 25% below that approved for the B-624 waste gas injection well (1,960 psig). The B-624 is approximately 1¼ miles southeast, approximately 600 feet structurally lower on the Leadville Limestone and approximately 160 feet lower in surface elevation. This equates to a difference of about 200 psi in hydrostatic pressure.

Analysis of a lately run Cement Bond Log for the B-814 well reveals that the interval of the confining layer is characterized as having the casing well bonded to the cement over a considerable interval of the Pennsylvanian and Mississippian strata. The top of the cement is at 5,174 feet. The observed degree of bonding is considered acceptable for purposes of disposal well permitting.

Oil/Gas & Other Mineral Resources Protection:

The Lisbon Field Leadville Limestone productive zone has effectively been "watered out" in the injection well by the anticlinal field's active water drive. No other known potentially producible zones are recognized in this well.

A review of the well records of the Division of Oil, Gas and Mining revealed that there were five wells within the one-half mile regulatory AoR originating from the surface location of the subject well. These are listed in review below:

- Lisbon B-814 (4303730082) – The subject well for which a waste “acid” gas UIC Class II permit is sought, the Operator lists this 1972 well as a shut-in oil well. It appears to be in acceptable condition as reflected in the Division well records, however, it is noted that the Operator effected two high resolution passes of a Schlumberger UltraSonic Imager Tool (USIT) to be made over parts of the production casing when the prior normal resolution pass indicated some possible casing problems. The USIT was not tendered in the application documentary submission so I requested that a copy be sent. Cement was not circulated to surface, the top of cement (TOC) occurring at 5,174 feet Total Depth by CBL (CBL logging terminated shortly above the TOC). Schlumberger conducted a review of the questionable sections of the subject USIT log and their report dated 8/27/04 opines that the concerns are trivial and the casing and cement are sound.
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- Lisbon B-614A (4303731351) – This 1988 well appears to be in acceptable condition and is currently carried as a shut-in oil well. A Gearhart CBL with adequate indicated bonding is on file, although no transit time curve is presented on the log as a quality control indicator.
- Lisbon D-715 (4303716252) – This P&A’d 1965 well was whipstocked when the original (open) hole was junked. The whipstocked leg experienced a collapsed 5½-inch production casing. It was described as repaired. The whipstock leg was subsequently plugged and abandoned. It currently contains 2½ inch tubing that was chemically cut at 5,420 feet. The vintage McCullough CBL provided to the Division lacks a Variable Density Log (VDL) wavetrain curve and the transit time curve seems uncharacteristically high for its casing size and frequently varies 50 microseconds in many places along the length of the log. According to the Operator’s engineering staff the top of cement in this well is at 3,775 feet and a plug was set at 5,330 feet to isolate the bad sections. In addition, they indicate that the open hole section of the originally drilled leg is in Paradox Salt except for the bottom portion in the Mississippian. The lower portion was plugged and a kickoff plug was placed at the top of the open hole section, all of which should serve to isolate the original leg.

- Lisbon A-814 (4303716238) – The file for this P&A'd 1962 well contains documentation from September of 1985 that indicates a likely casing leak and poor casing condition, including tight spots. The vintage CBL filed with the division has no VDL or transit time quality control curve. The Operator's engineering staff places the top of cement at 5,097 feet and a retainer at 6,120 feet. They relate that the casing was subsequently tested to 500 psi and held.

This review of the well bores within the Area of Review concludes that there are none that are likely to pose a conduit for the vertical migration of the waste gas injectate.

Uranium mining has historically occurred in the Lisbon Valley area, as recently as during the late 1970's or early 1980's. The lateral extent of the subsurface workings of these mines is not available to the Division's Geographic Information System and it is not known with certainty if that information has been archived anywhere. For this reason, no attempt has been made to determine the proximity of the nearest subsurface workings in the mines either laterally or in terms of elevation above the injection zone. From personal experience, I know that the nearby mines were working in the Chinle Formation and possibly the uppermost Cutler Formation, both of which are above the confining Paradox Salt section. There are several inactive uranium mine portals outside the AoR but within a mile of the well.

Bonding:

Tom Brown, Incorporated, has an statewide \$80,000 surety bond filed with the State School and Institutional Trust Lands Administration (SITLA), which provides coverage for plugging this well. In addition, they have a \$150,000 nationwide bond filed with the BLM. The state-bonding situation is expected to change on 9/1/2004 to a plugging bond estimated to be \$120,000 filed with this Division (DOGM) and a reduction in SITLA binding to a \$15,000 performance bond.

Safety Considerations:

The operator has taken several positive measures to ensure the safe operation of the proposed facility. In addition, safety benefits are optimized within the design parameters of the operation. Safety considerations include:

- Well location is 1.25 miles remote from the gas plant.
- Well location is isolated and contained in a narrow unnamed side canyon.
- There is little quality ground water in the area.
- The proposed waste gas disposal well has acceptable cement and the casing appears to be mechanically sound.
- The Leadville Limestone takes injected fluid on a vacuum.

- The injection zone is confined above by several thousand feet of Paradox Salt.
- The waste gases will be returned to their formation of origin.
- Emplacement of a wellhead meeting the NACE MR0175 standard for corrosion.
- Utilization of a nonconductive diesel oil packer fluid for corrosion.
- Automatic monitoring of injection parameters with out-of-bounds alarms and automatic shutoffs.
- The operator has proposed an acceptable hydrogen sulfide contingency and safety plan.
- The operator will conduct an initial MIT prior to beginning injection. If it is acceptable they will inject for a year and then conduct a second MIT. If it is also acceptable then they will default to a normal five-year MIT schedule.

Actions Taken and Further Approvals Needed:

Notice of this application was published in the Salt Lake Tribune and San Juan Record. In addition, copies of the notice was provided to the EPA Region 8, the BLM Moab Field Office and Tom Brown, Incorporated. The notice stated the proposed interval for injection to be selective zones in the Leadville Limestone (Mississippian). Any future injection into a formation other than that permitted will require administrative approval after appropriate sampling and testing.

After reviewing their documentary submission and application, it is my conclusion that Tom Brown, Incorporated, ought to be granted a permit to utilize the B-814 well for injecting the proposed hydrogen sulfide and carbon dioxide waste gas mixture into the proposed zone. The proposed operations would not result in any meaningful diminution in the quality of the noxious formation water. A pressure increase should be experienced near the wellbore, which would dissipate after injection ceases. No negative impacts on any high quality ground water resource are anticipated resultant of the subject permitted operations.

A properly designed and constructed injection well, combined with periodic mechanical integrity tests, demonstrably poses no threat to fresh or useable groundwater supplies. The Division staff recommends administrative approval of this application.

Note: Applicable technical publications concerning water resources in the general vicinity of this project have been reviewed and taken into consideration during the permit review process.

Reviewer(s): Christopher J. Kierst Date: 8/31/2004

DIVISION OF OIL, GAS AND MINING
UNDERGROUND INJECTION CONTROL PROGRAM

**PERMIT
STATEMENT OF BASIS**

Applicant: Tom Brown, Incorporated

Well: Lisbon B - 814

Location: T30S, R24E, S14, San Juan Co. Utah

API: 4303730082

Ownership Issues:

This well is located on federal lands administered by the Bureau of Land Management (BLM) within the Lisbon Federal Unit. There are no other landowners within a half mile buffer distance from the proposed injection well. Tom Brown, Incorporated, retains a lease on the hydrocarbon mineral estate on Section 14. A state mineral tract exists (se sw S. 14) within the half mile Area of Review (AoR). A sworn Affidavit of Mailing (of the application and associated documentation to the particular owners, operators and surface owners) has been placed in the well file.

Well Integrity:

Description of the Casings and Cement:

CASING PROGRAM

<u>String Type</u>	<u>Hole Size</u>	<u>Depth</u>	<u>Feet</u>	<u>Casing Diameter</u>	<u>Weight</u>	<u>Grade</u>	<u>Connection Type</u>
Conductor	?	?	?	?	?	?	?
Surface	?	1003'	?	9 ^{5/8} "	43.5#	N-80	?
Production	?	9450'	?	5 1/2"	17#	J-55	?

CEMENT PROGRAM

<u>String Type</u>	<u>DV Depth</u>	<u>Stage Lead/Tail</u>	<u>Cement Bottom</u>	<u>Cement Top</u>	<u>Number Sacks</u>	<u>Cement Type</u>	<u>Cement Yield</u>	<u>Cement Weight</u>
Conductor	-	-	-	-	-	-	-	-
Surface	-	-	-	Surface	450 150	50/50 POZ "C"	?	?
Production	-	-	?	5174'	900 150	Halcolite "C"	?	?

Ground Water Protection:

Tom Brown, Inc. proposes to inject a 50% H₂S, 50% CO₂ produced "acid gas" mixture into the gases' strata of origin, the Mississippian Leadville Limestone,

through an overall perforated interval from 8,476 feet to 8,650 feet' Total Depth (TD), which is an unplugged interval used in previous production operations. No good quality ground water resource is likely be encountered in that Formation near the injection well location and at that depth.

The operator asks to be permitted to inject the "acid gas" waste stream into the Formation in the Lisbon B-814 at a Maximum Allowable Surface Injection Pressure of 1,500 psig. The permitted maximum injection pressure in the B-624 is 1,960 psig, a pressure that was supported by step rate test results. They hope to inject at an average rate of 1.5 MMCFD. The injectate gas mixture will be injected "dry", that is, with all the free water removed, and at sufficiently high temperature and pressure that no water is permitted to condense. This will be done to preclude the possibility of water and H₂S combining to create a sulfide stress cracking (SSC) corrosion problem for the 1970s' era J-55 Grade production casing and the 2^{7/8}" J-55 Grade tubing and the packer. The operator has conducted phase behavior studies in order to inject the proposed gas mixture with no free water. They propose to conduct their operations to properly process the waste gas stream and maintain the necessary temperatures and pressures needed to ensure that injection will occur safely within the requisite phase envelope.

The base of moderately saline waters (encountered at about the 5,500 feet elevation) occurs over 7,500 feet higher, at about 1,000 feet of depth in the B-814 injection well. The primary confining layer above the injection zone will be more than 4,000 feet of Pennsylvanian-age Paradox Salt. The operator estimates that the proposal will eventuate the injection of a converted volume of 1.25 MMB, which is about 6% of the reservoir pore volume. A 10-year breakeven term is forecast for this phase of the operator's project, but the overall injection project life is likely to be somewhat longer. The mixture is not expected to reach any offset well bores during the remaining economic life of the field. The mixture is expected to be highly soluble in the Leadville Limestone connate water and may slightly increase the reservoir permeability, commensurately lowering injection pressure.

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Note: Applicable technical publications concerning water resources in the general vicinity of this project have been reviewed and taken into consideration during the permit review process.

Reviewer(s): Christopher J. Kierst Date: 8/31/2004

From: "Marty Buys" <mbuys@buysandassociates.com>
To: "Chris Kierst" <chriskierst@utah.gov>
Date: 7/26/2004 12:59:09 PM
Subject: Fw: Lisbon B 814 Injection Well

MessageChris, Attached is information concerning the MIT and conversion. Additional information will be coming.

Martin W. Buys, President
300 E. Mineral Ave., Suite 10
Littleton, CO 80122-2655
303/781-8211
303/781-1167 Fax
mbuys@buysandassociates.com

PRIVILEGED AND CONFIDENTIAL ATTORNEY CLIENT COMMUNICATION

The following is the procedure we would use to prove mechanical integrity and convert the well to an acid gas injection well.

- 1.. MIRU
- 2.. POOH with tubing
- 3.. RIH and set plug @ +/-8400'.
- 4.. Test casing to 1500 psi for 30 minutes.
- 5.. RIH, set packer @ +/- 8400'
- 6.. RIH with tubing, sting into seal assembly.
- 7.. Pressure test backside (annulus between casing and tubing) to 1500 psi for 30 minutes
- 8.. RU wireline, RIH and set plug in nipple @ +/- 8400'.
- 9.. Pressure test tubing to 1500 psi for 30 minutes.
- 10.. RIH and pull plug
- 11.. RDMO

*Talked w/ Gil
and this proposed MIT
program looks good to both
of us. 7/27/04*

I have attached the wellwork report from March. The casing was pressure tested to 1000 psi and 1500 psi for 20 minutes (unfortunately, it was not charted). They also ran a USIT and CBL, which we could provide to show integrity.

Let me know if you have any more questions.

Kim

Kim Sands

Production Engineer - Paradox Basin

Encana

303-260-5068 office

720-946-5468 fax

WELLBORE DIAGRAM

Surface Loc: 2601' FSL & 1482' FWL, Sec. 14

Operator: Tom Brown, Inc.
Well Name: Lisbon B-844
Lease Number: 8910079759
Location: NESW Sec. 14-T30S-R24E
Field: Lisbon
County, State: San Juan County, UT
API Number: 43-037-30082
Diagram Date: 3/16/2004 jw

FORMATIONS

Homaker Trail 3162
Ismay 4040
Paradox Salt 4386
Base Salt 8350
Mississippian 8470
Ouray 8916

KB 6482'

GL 6468'

Well History

Spud Date: 7/8/1972
TD Reached: 8/29/1972
Completion Date: 10/13/1972

Tubing Detail:

KB	14.00'
"R" Nipple @ 8431	1.00'
Baker R-3 5-1/2" x 2-7/8" pkr 18#k compr.	7.00'
124 jts 2-7/8" J-55 EUE 8rd tbg	8,414.00
EOT	8436.00'

Gas Lift Valves @ 7586', 6514'
5417', 4257', 3068', 1800'

Current Diagram

Baker R-3 pkr
8436'

	8476-8479'	5/1991: Perf'd w/4 spf, acidize w/4300 gal 15% HCL SWIC acid
	8538-8546	
	8568-8640	
	8640-8650'	5/1991: Perf'd w/4 spf, acidize w/500 gal 15% HCL
Cmt retainer @ 8658'	8662-8670	8/1982: Perf'd w/4 spf, acidize w/2000 gals 28 HCL Sqzd w/150 sx "G" cmt
Cmt retainer @ 8721	8772-8781'	9/1972: Perf'd w/ 2 spf. Acdz w/500 gals 28% HCL acid Sqzd w/150 sx cmt
Cmt retainer @ 8783'	8789-8808'	9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL Sqz'd perms w/185 sx cmt
Cmt retainer @ 8829'	8843-8875	9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL Sqz'd perms w/200 sx cmt
PBTD 8935'		
	5-1/2" 17# J-55 & N-80 csg @ 9450'.	

) [] 896 []) Cemented w/ 900 sx Halcolite; f/b 150 s []

WELLBORE DIAGRAM

PROPOSED ACID GEL INJECTION

Surface Loc: 2601' FSL & 1482' FWL, Sec. 14

Operator: Tom Brown, Inc.
 Well Name: Lisbon B-814
 Lease Number: 8910079759
 Location: NESW Sec. 14-T30S-R24E
 Field: Lisbon
 County, State: San Juan County, UT
 API Number: 43-037-30082
 Diagram Date: 3/23/2004 jw

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Homaker Trail 3162
 Ismay 4040
 Paradox Salt 4386
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 Mississippian 8470
 Ouray 8916

KB 6482'

GL 6468'

9-5/8" 43.5# N-80 csg set @ 1003'. Cmt'd w/ 450 sx 50/50 Poz f/b 150 sx "C" - cmt to surf (set 7/13/72)

Well History

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 TD Reached: 8/29/1972
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124 jts 2-7/8" J-55 EUE 8rd tbg	8,414.00
EOT	8436.00'

Permanent Packer 8436'

Cmt retainer @ 8658'

Cmt retainer @ 8721

Cmt retainer @ 8783'

Cmt retainer @ 8829'

PBTD 8935'

8476-8479'
 8538-8546
 8568-8640

8640-8650'
 8662-8670

8772-8781'

8789-8808'

8843-8875

5/1991: Perf'd w/4 spf, acidize w/4300 gal 15% HCL SWIC acid

5/1991: Perf'd w/4 spf, acidize w/500 gal 15% HCL

8/1982: Perf'd w/4 spf, acidize w/2000 gals 28 HCL
 Sqzd w/150 sx "G" cmt

9/1972: Perf'd w/ 2 spf. Acdz w/500 gals 28% HCL acid
 Sqzd w/150 sx cmt

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
 Sqz'd perms w/185 sx cmt

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
 Sqz'd perms w/200 sx cmt

5-1/2" 17# J-55 & N-80 csg @ 9450'.

) [] 8965 []) Cemented w/ 900 sx Halcolite; f/b 150 sx C []



Tom Brown, Inc.

555 Seventeenth Street, Suite 1850
Denver, CO 80202-3918
(303) 260-5000

Daily Completion/WellWork Activity Report

Completion/Wellwork Activity

Well Name : Lisbon B 814					
Well User ID :	272677	API Code:	4303730082	AFE # :	42386
Operator :	Tom Brown, Inc.			Operated :	Yes
S/T/R :	14 / 30S / 24E	WI :	0.9950307	NRI :	0.848352
County, St. :	San Juan, Ut	Field :	Lisbon Unit	AFE CC :	\$0
Spud Date :		Dlg Rig Rel Date:		AFE Total:	\$596,905
Comp Date:		AFE Type :	Other	PBTD:	0
ft. from		line and		ft. from	
				line	
TD :					0
Job Purpose :	Convert to Acid Gas Injection				

Date : 3/18/2004

Activity: RUPU

Days On Completion: 1

Remarks : Fixed bad spots in road. Road rig to location. Cleaned off and dressed location. Moved in and spotted equipment. Set anchors. RUPU. Hooked up flowback tank and pump in lines. SDFN.

DC : \$6,550

CCC: \$6,550

CWC: \$6,550

Date : 3/19/2004

Activity: POOH w/pkr

Days On Completion: 2

Remarks : 200 psi Tbg and Csg pressure. Checked H2S. 4000 ppm. Blew well down. RU pump. Pumped 180 bbls fw down csg and tbg started to blow. SD. Casing on vacuum. Tbg blowing. Pumped 20 bbls fw down tbg. SD. Tbg on vacuum, casing blowing. Well dead. ND wellhead. NU BOP. Pulled 15,000# over string weight and packer came free. POH w/268 jts 2-7/8" J-55 EUE, 5 gas lift mandrells and packer. Laid down 65 jts plugged w/scale buildup between 2nd and 3rd gas lift mandrells. All other tbg looks good. SD for night.

DC : \$8,150

CCC: \$14,700

CWC: \$14,700

Date : 3/20/2004

Activity: Test Casing

Days On Completion: 3

Remarks : 25 psi on well. Blew well down. Made up 5-1/2" RBP. RIH on 268 jts tbg. Set plug @ 8402'. Hooked up pump. Filled and circulated hole clean w/260 bbls fw. Tested csg to 1000 psi for 20 min. Test ok. POH w/tbg and retrieving tool. SD for weekend.

DC : \$6,950

CCC: \$21,650

CWC: \$21,650

Date : 3/21/2004

Activity: Shut Down

Days On Completion: 4

Remarks : Shut Down Saturday.

DC : \$400

CCC: \$22,050

CWC: \$22,050

Well Name : Lisbon B 814

Report Date : Thursday, July 22, 2004

Page 1 of 2



Tom Brown, Inc.

555 Seventeenth Street, Suite 1850
Denver, CO 80202-3918
(303) 260-5000

Daily Completion/WellWork Activity Report

Date : 3/22/2004

Activity: Shut Down

Days On Completion: 5

Remarks : Shut Down Sunday.

DC : \$400

CCC: \$22,450

CWC: \$22,450

Date : 3/23/2004

Activity: Run csg inspection log

Days On Completion: 6

Remarks : RU Schlumberger. RIH w/USIT and CBL. Run CBL from 8350'-5050'. Log shows good bond w/cmt top @ 5174'. Run USIT from 8350' to surface. Log shows possible internal pitting from 7700' to 7800' and a questionable area from 6475' to 6615". Rerun both questionable areas in high resolution mode. POH. RD Schlumberger. SD for night.

DC : \$21,400

CCC: \$43,850

CWC: \$43,850

Date : 3/24/2004

Activity: Pull RBP

Days On Completion: 7

Remarks : Made up retrieving tool. RIH on 267 jts. Hooked up pump. Pressure tested casing to 1500 psi for 20 min. Test ok. Picked up 1 jt. Latched and released RBP. POH and laid down 65 jts tbg. POH w/remaining tbg and RBP. Made up 2.25F nipple. RIH on 203 jts tbg. Hooked up pump to establish injection rate. Pumped 245 bbls @ 6 bpm. Could not fill hole. ND BOP. Landed tbg w/screw on tree. SD for night.

DC : \$9,550

CCC: \$53,400

CWC: \$53,400

Date : 3/25/2004

Activity: rig down

Days On Completion: 8

Remarks : RD PU. Loaded and hauled off equipment. Turned well over to production.

DC : \$1,000

CCC: \$54,400

CWC: \$54,400

Well Name : Lisbon B 814

Report Date : Thursday, July 22, 2004

Page 2 of 2

WELLBORE DIAGRAM

PROPOSED ACID GAS INJECTION

Surface Loc: 2601' FSL & 1482' FWL, Sec. 14

Operator: Tom Brown, Inc.
 Well Name: Lisbon B-814
 Lease Number: 8910079759
 Location: NESW Sec. 14-T30S-R24E
 Field: Lisbon
 County, State: San Juan County, UT
 API Number: 43-037-30082
 Diagram Date: 3/23/2004 jw

FORMATIONS

Homaker Trail 3162
 Ismay 4040
 Paradox Salt 4386
 Base Salt 8350
 Mississippian 8470
 Ouray 8916

KB 6482'

GL 6468'

9-5/8" 43.5# N-80 csg set @
 1003'. Cmt'd w/ 450 sx 50/50
 Poz f/b 150 sx "C" - cmt to surf
 (set 7/13/72)

Well History

Spud Date: 7/8/1972
 TD Reached: 8/29/1972
 Completion Date: 10/13/1972

Tubing Detail:

KB	14.00'
"R" Nipple @ 8431	1.00'
Baker R-3 5-1/2" x 2-7/8" pkr 18#k compr.	7.00'
124 jts 2-7/8" J-55 EUE 8rd tbg	8,414.00
EOT	8436.00'

Permanent Packer
 8436'

Cmt retainer @ 8658'

Cmt retainer @ 8721

Cmt retainer @ 8783'

Cmt retainer @ 8829'

PBTD 8935'

5-1/2" 17# J-55 & N-80 csg @ 9450'.

5/1991: Perf'd w/4 spf, acidize w/4300 gal 15% HCL SWIC acid

5/1991: Perf'd w/4 spf, acidize w/500 gal 15% HCL

8/1982: Perf'd w/4 spf, acidize w/2000 gals 28 HCL
 Sqzd w/150 sx "G" cmt

9/1972: Perf'd w/ 2 spf. Acdz w/500 gals 28% HCl acid
 Sqzd w/150 sx cmt

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
 Sqz'd perms w/185 sx cmt

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
 Sqz'd perms w/200 sx cmt

8476-8479'

8538-8546

8568-8640

8640-8650'

8662-8670

8772-8781'

8789-8808'

8843-8875

) [redacted] 896 [redacted]) Cemented w/ 900 sx Halcolite; f/b 150 s [redacted]

From: "Gimmeson, Brant (TBI)" <bgimmeson@tombrown.com>
To: "Chris Kierst" <CHRISKIERST@utah.gov>
Date: 8/5/2004 5:22:03 PM
Subject: Lisbon B-814 acid gas well

As per your request today that a registered Engineer, PE review the wells within a 1/2 mile radius of the proposed well and to assure that no conduit exists that could enable fluids to migrate up or down the wellbore and enter improper intervals.

The team lead for this area for Tom Brown is Ron Schuyler (WY PE) Ron will be moving from Canada next week and will be out of town. He plans to review the adjoining well information with Kim Sands (Petroleum Engineer) this Friday. Kim will finish the review and Ron will sign off on the items above if that is what is determined from the review conducted by himself and Kim.

So Ron would sign off on it as review by a person directly under his supervision. Would that be appropriate?

What do you require as a sign off:

Example.

As per rule R649.5-2.11 I hereby state that a person under my direct supervision has reviewed the well information and determined that the wells within a 1/2 mile radius of the proposed Lisbon B-814 (B-614, B-614A, D-715, A-814) have been reviewed for the mechanical condition to assure that no conduit exists that could enable fluids to migrate up or down the wellbore and enter improper intervals.

Signed by both individuals.

Or can we have Kim sign it without Ron and remove the under my direct supervision quote be removed?

It didn't appear to me in the rule that a PE was required.

CC: "Schuyler, Ron (TBI)" <RSchuyler@tombrown.com>

*\$150,000 nationwide
BLM Bond
by Tom Brown
Ed Bonner
538-5151
STLA Bond
\$80,000 Statewide
Earlene Russell
By 9/1/04 Tom Brown
will need \$20,000
plugging bond and reduce
STLA bond to \$15,000
performance bond*

From: "Marty Buys" <mbuys@buysandassociates.com>
To: "Chris Kierst" <chriskierst@utah.gov>
Date: 8/5/2004 9:27:20 AM
Subject: Re: Lisbon B-814

A Schlumberger log for CBL and Ultrasonic Imager/Gamma Ray is being sent to you by Fedex for deliver on Friday.

Martin W. Buys, President
300 E. Mineral Ave., Suite 10
Littleton, CO 80122-2655
303/781-8211
303/781-1167 Fax
mbuys@buysandassociates.com

PRIVILEGED AND CONFIDENTIAL ATTORNEY CLIENT COMMUNICATION

----- Original Message -----

From: "Chris Kierst" <chriskierst@utah.gov>
To: <mbuys@buysandassociates.com>; "Gil Hunt" <GILHUNT@utah.gov>
Sent: Wednesday, August 04, 2004 11:48 AM
Subject: Lisbon B-814

> We would like a copy of the USIT log run on the B-814 on or about
> 3/23/04. Also, you do not have an H2S contingency plan included for
> this (Lisbon B-814) well. The Emergency Response Plan/Public Protection
> Plan that was submitted when the first acid gas well (Lisbon B-624) was
> permitted was specific to that well only. A plan must be submitted for
> the Lisbon B-814 application as well.
>

From: "Gimmeson, Brant (TBI)" <bgimmeson@tombrown.com>
To: "Chris Kierst" <CHRISKIERST@utah.gov>
Date: 8/5/2004 8:18:34 AM

Please send me a copy of the email to Buys and Ron Schuyler
Thanks

Brant Gimmeson
Environmental and Safety Manager
Tom Brown Inc.
303-260-5030
cell 303-819-7323
bgimmeson@tombrown.com

From: Chris Kierst
To: Gil Hunt; Marty Buys
Date: 8/4/2004 11:48:56 AM
Subject: Lisbon B-814

We would like a copy of the USIT log run on the B-814 on or about 3/23/04. Also, you do not have an H2S contingency plan included for this (Lisbon B-814) well. The Emergency Response Plan/Public Protection Plan that was submitted when the first acid gas well (Lisbon B-624) was permitted was specific to that well only. A plan must be submitted for the Lisbon B-814 application as well.

From: Chris Kierst
To: Marty Buys
Date: 7/28/2004 4:50:39 PM
Subject: Lisbon B-814 acid gas disposal permit

While preparing my Statement of Basis document pursuant to procuring a Class II UIC permit for this well, I find that I am lacking Reviews of the mechanical condition (R649-5-2-2.11) of each well within the half mile Area of Review . I recognize that completion information has been provided for each of the five wells (B-814, B-614, B-614A, D-715 & A-814). The completion information is needed but alone doesn't satisfy the requirements of the stated Rule. **Please Note: Review information for the C-814 well will not be needed.**

The Rule requirement is for a review of the mechanical condition of each of these wells for assurance that no conduit exists that would enable the vertical migration of B-814 injectate to improper geologic intervals via these well bores. This presupposes a professional opinion statement from an engineer of the fitness of the mechanical systems in each well to prevent fluid migration along the well bores in their present condition. These statements should address anything, such as casing leaks or poor cement bonds, which may compromise the wells' mechanisms for preventing vertical migration. Please provide such reviews so that I may complete my Statement of Basis and advance the permit process.

CC: rschuyler@tombrown.com

*This email is in Work
in progress pending
resolution of an
email daemon
problem by HelpDesk*

From: "Marty Buys" <mbyus@buysandassociates.com>
To: "Chris Kierst" <chriskierst@utah.gov>
Date: 7/27/2004 11:09:40 AM
Subject: B-814 info

Chris, I believe that this information and what I sent yesterday answers all the questions that you asked a few weeks ago. Please let me know what else you need and I'll get it for you.

1 The max injection pressure requested is 1500 psig.

2 The requested injection flow rate is of 1.5 mmscf/day.

3 The initial MIT test will be conducted and recorded and sent to the UTDOGM prior to beginning injection. After 1 year of injection a second MIT will be conducted and recorded. From then on the MIT will be conducted every 5 years per the UTDOGM requirements.

thank you, Marty

Martin W. Buys, President
300 E. Mineral Ave., Suite 10
Littleton, CO 80122-2655
303/781-8211
303/781-1167 Fax
mbyus@buysandassociates.com

PRIVILEGED AND CONFIDENTIAL ATTORNEY CLIENT COMMUNICATION

*a change from the original UIC Form request
OK 7/27/04*

*This MIT regimen is
acceptable. OK 7/27/04*

From: "Marty Buys" <mbyus@buysandassociates.com>
To: "Chris Kierst" <chriskierst@utah.gov>
Date: 7/26/2004 1:19:52 PM
Subject: Lisbon B-814

This constitutes a change from the original request but is the same as that requested for the B-624 so it is OK. cf 7/27/04

1. The injection mixture will be CO₂ 50 %/H₂S 50% for the B-814. The water in the gas stream is reduced through temperature and pressure controls, leaving no free water in the system.
2. TBI has tested the well to 1500# so that will be maximum.

Other data will follow.

Martin W. Buys, President
300 E. Mineral Ave., Suite 10
Littleton, CO 80122-2655
303/781-8211
303/781-1167 Fax
mbyus@buysandassociates.com

this is a change from the original DRC Form 1 max pressure request. cf 7/27/04

PRIVILEGED AND CONFIDENTIAL ATTORNEY CLIENT COMMUNICATION

EMERGENCY RESPONSE PLAN/
PUBLIC PROTECTION PLAN

B-814 INJECTION FACILITY
SULFUR ENRICHMENT & INJECTION PROCESSING FACILITY
SAN JUAN COUNTY, UTAH

PREPARED FOR:

TOM BROWN, INC.
Lisbon Valley Industrial Area
Box 760
Utah 84532

9:03 8/16 Ken Allred
435 686

(435) 260-1669 cell

8/17/04

Talked w/ Ken Allred about
H₂S monitors & sensors position
and the worst case scenario w/
map showing the prevailing
winds blowing plume over ridge
of Lisbon Valley. Asked for more
detail dealing w/ case of no wind
and air density currents moving
H₂S plume down canyons around
B-814 rather than up. He will amend
Emergency Response Plan & resubmit it.

RED BY:

LIANCE SERVICES, INC.
1/2 Road
Lisbon, Colorado 81505
63.7800



LLERAN

PREPARED:
2004

RECEIVED

AUG 09 2004

DIV. OF OIL, GAS & MINING

**EMERGENCY RESPONSE PLAN/
PUBLIC PROTECTION PLAN**

**B-814 INJECTION FACILITY
SULFUR ENRICHMENT & INJECTION PROCESSING FACILITY
SAN JUAN COUNTY, UTAH**

PREPARED FOR:

**TOM BROWN, INC.
Lisbon Valley Industrial Area
P.O. Box 760
Moab, Utah 84532**

PREPARED BY:

**CORDILLERAN COMPLIANCE SERVICES, INC.
826 21½ Road
Grand Junction, Colorado 81505
970.263.7800**



**DATE PREPARED:
July 2004**

RECEIVED

AUG 09 2004

DIV. OF OIL, GAS & MINING

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APPENDICES

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APPENDIX B	FACILITY MAPS
APPENDIX C	EMERGENCY CONTACT LIST
APPENDIX D	LEASE HOLDER INFORMATION
APPENDIX E	TSCREEN OUTPUT DATA
APPENDIX F	HYDROGEN SULFIDE MSDS
APPENDIX G	EMPLOYEE SIGNOFF SHEET

1.00 PURPOSE

This Emergency Response Plan and Public Protection Plan (Plan) is specific to the Lisbon B-814 well site and appurtenant pipeline equipment portion of the Sulfur Enrichment & Injection Processing Facility (SEI Unit) for the Lisbon Gas Plant owned and operated by Tom Brown, Inc. (TBI). This document is designed to provide for the safety and welfare of facility personnel, the community, the environment, and property.

This Plan establishes evacuation procedures, assigns response duties to specific individuals, provides for notification of outside agencies, and provides details of actions to alert and protect the public. This Plan will be activated immediately upon the detection of the release of a potentially hazardous volume of hydrogen sulfide (H_2S).

2.00 GENERAL INFORMATION ON AND PHYSIOLOGICAL RESPONSES TO HYDROGEN SULFIDE (H₂S) AND SULFUR DIOXIDE (SO₂)

2.10 HYDROGEN SULFIDE (H₂S)

Hydrogen sulfide is a flammable, highly toxic, colorless gas that is heavier than air, with the odor of rotten eggs. It can be detected by smell at a concentration in air of only 0.002 parts per million (ppm). Concentrations of 100 ppm or above will deaden the sense of smell in a few minutes, and at a concentration of 700 ppm, a single breath can be fatal. If ignited, it burns with a blue flame. In still air it tends to accumulate in low places in dangerous concentrations. However, if it is warmer than the surrounding air, it may tend to rise. The upper flammability limit of H₂S in air is 44% and the lower flammability in air is 4%.

Breathing low concentrations of H₂S can cause headaches. Higher concentrations (0.01 percent by volume) cause irritation of the eyes, nose, throat, and lungs. Eyes become red and swollen, accompanied by sharp pain in more severe cases. Still higher concentrations (0.05 percent by volume) cause dizziness, unconsciousness, and failure of respiration.

The Threshold Limit Value (TLV) is 10 ppm (0.001%) in air. This is the limit for eight hours of continuous exposure as recommended by the American Conference of Governmental Industrial Hygienists. The health and safety reference values of various concentrations of H₂S are listed in the toxicity chart below. A Manufacturers Safety Data Sheet (MSDS) for hydrogen sulfide is included in Appendix F.

2.20 SULFUR DIOXIDE (SO₂)

Sulfur dioxide is formed with the burning of hydrogen sulfide gas. Sulfur dioxide is a pungent, irritating, suffocating, colorless gas. This gas is normally heavier than air and concentrations above 400 ppm are considered dangerous for even brief exposures.

Under special circumstances hydrogen sulfide gas may be ignited in order to dissipate a gas cloud and reduce the impact on a local area. Often these burning temperatures are enough to raise and mix the resultant SO₂ with air in a ratio well below toxic levels. However, great care should always be taken and proper monitoring should be performed when this is attempted.

Due to the irritating effect of SO₂ at concentrations of less than 5 ppm, there is usually no doubt as to its presence in an area, which provides better warning characteristics than H₂S.

2.30 TOXICITY CHART

NAME	SPECIFIC GRAVITY ¹	TLV ² (ppm)	HAZARDOUS LIMIT ³	LETHAL CONCENTRATION ⁴
Hydrogen Sulfide	1.18	10	100 ppm/1 hr.	700 ppm
Sulfur Dioxide	2.21	2	50 ppm/1 hr.	400 ppm

Notes:

- (1) Specific gravity of air = 1.00.
- (2) TLV - Threshold Limit Value.
- (3) Hazardous Limit - concentration that may cause death with short term exposure.
- (4) Lethal concentration - Concentration that may cause death with only a few breaths.

3.00 TREATMENT PROCEDURES FOR H₂S AND SO₂ EXPOSURE

- A. Remove the patient to fresh air. Personnel should always use fresh air breathing equipment when entering an area to retrieve a person who has been overcome with H₂S.
- B. Call a physician and get patient under his care as soon as possible.
- C. If breathing has ceased, begin artificial respiration immediately. Give cardiopulmonary resuscitation (CPR) only if there is no pulse and no breathing. Continue revival efforts until physician arrives or, if patient is mobile and it is determined that he should go to the hospital, continue oxygen inhalation under the physician's direction.
- D. Administer oxygen to help eliminate toxic substances from blood stream.
- E. Keep the patient at rest and protect from chilling.

4.00 OPERATIONAL PRECAUTIONS AND PROCEDURES

4.10 SULFUR ENRICHMENT & INJECTION SYSTEM

The sulfur enrichment and injection (SEI) system originates at the TBI Lisbon Gas Plant and consists of compression equipment, a piping system, a line heater, and two injection wells. A 2-inch high-pressure pipeline is utilized to move a dense phase mixture of H_2S and CO_2 from the Lisbon Gas Plant to the B-624 injection well site and to the B-814 backup injection well site. The concentration of the H_2S in the system fluid varies from 4 percent to 50 percent by volume at various points in the system. A flow diagram of the system is shown in Appendix A.

The injection well system is constantly monitored via a Supervisory Control and Data Acquisition (SCADA) system integrated into the computer network at the Lisbon Gas Plant control room. There are pressure, temperature and other instruments located at the B-814 site that are monitored and controlled by a "programmable logic controller" (PLC) at the well site. The well site PLC will communicate with the plant's distributive computer control system (DCS) system using the SCADA system. The pressure and temperature of the process pipeline will be measured at the pipeline entrance and also on the well site. The PLC system will continuously monitor key process variables on the well site and will alarm the plant's control room operator if operations go outside of normal boundaries. The control room operator can shut down the system using the SCADA system, if necessary.

The process pipeline to the B-814 well transports the process fluid and will be new 2 inch schedule 160 with 2 inch fiberglass insulation. A pressure control valve in the process pipeline, located near the B-814 wellhead, will maintain pipeline pressure (i.e. compressor discharge pressure) at the normal operating pressure of 1500 psig. The design pressure of the carbon steel line is 2165 psig and 350 deg F: the compressors will shut down on high pressure at 1950 psig. Backup relief valve pressure protection is afforded at the 2165 psig level.

Internal pipe corrosion is controlled by dehydrating the gas through the compression facility and then operating the process such that free water never condenses anywhere in the piping. There will be no corrosion if there is no free water. Under normal conditions there will be no free water in the pipeline, therefore, corrosion is not anticipated. However, a corrosion allowance in excess of 0.250" has been provided. The water contained in the high- H_2S fluid is reduced from almost 1000 lb H_2O per MMSCF of gas to less than 250 lb H_2O per MMSCF of gas by five stages of compression, cooling and scrubbing in the compression facility. The dehydrated, high pressure, dense phase fluid exiting the compression facility is hot (greater than 200 deg F) and is not allowed to cool to the temperature at which water can condense (the vapor dew point); anywhere along the way to the reservoir. The 2 inch schedule 160 with 2 inches of insulation from the compression facility to the well site. The insulation will prevent the high H_2S dense phase fluid from cooling to the "water dew point" temperature. Temperature gauges will be installed along the pipeline to verify that adequate temperature is maintained at all times. Upon reaching the well site, the dense phase fluid is heated to over 150 deg F in an indirect fired heater. The "hot" dense phase fluid subsequently flows across a pressure control valve then into the wellbore. The fluid will cool due the pressure drop across the control valve but the line heater will be operated such that the temperature downstream of the control valve is always greater than the "water dew point". The fluid then enters the wellbore where it is heated by the ground as it flows deeper into the subsurface. The temperature of the Mississippian carbonate reservoir (at a depth of about 9,000 ft) where the fluid will be injected is about 140 deg F which is well above the "water dew point". All piping will be coated with a "corrosion inhibitor fluid" prior to commencing injection; however, continuous injection of corrosion inhibitor is not necessary. The corrosion allowance for the pipeline is 0.262 inch, which is wall thickness above and beyond the thickness needed to safely contain the pressure.

All system components are designed and constructed to withstand the operating conditions of the system. The injection system is protected from overpressure situations by safety pressure relief valves which are connected by a closed system to a flare at the Lisbon Gas Plant. Additionally, any manual or emergency purging of the pipe jacket or injection well system will flow to the plant flare. An existing and continuous supply of nitrogen and residue gas at the Lisbon Gas Plant is available to displace the entire volume of the injection well system, if necessary, to help mitigate hazardous situations.

Only qualified, authorized personnel, trained in TBI operation and safety procedures are allowed to operate and maintain the injection well system. The entire length of the injection pipeline is visually inspected on a quarterly schedule by an operations personnel member walking the pipeline route. Access to the road through the area adjacent to the injection well site and injection pipeline is limited to TBI personnel. Access is restricted by locked gates on either end of the road in the controlled area.

4.20 WORST CASE SCENARIO RADIUS OF EXPOSURE

The procedures and systems described above are in place to assure that an emergency or potentially hazardous situation remains a highly unlikely possibility. However, a rupture in the high pressure pipeline and a resulting release of approximately 5,000 pounds of hydrogen sulfide (an estimated 10-minute release) was chosen for analysis as the worst case scenario. With guidance from Bureau of Land Management (BLM) Onshore Order Number 6, a calculation of the radius of exposure has been performed for this worst case release from the injection system.

The Environmental Protection Agency (EPA) software program TSCREEN was used to determine the H₂S concentration levels at 100-meter intervals from the release point. The TSCREEN calculation results are shown in Appendix E.

The BLM Onshore Order Number 6 is particularly concerned with 500 part per million (ppm) and 100 ppm radius of exposure concentration levels. The BLM requires a Public Protection Plan when: the 100 ppm radius of exposure is greater than 50-feet and includes any area that the public could be expected to frequent; the 500 ppm radius of exposure is greater than 50-feet and includes any part of a public road or highway, or; the 100 ppm radius of exposure is equal or greater to 3,000-feet and includes public roads or facilities.

The 500 ppm radius of exposure calculated for this worst case release is approximately 884-feet, and the 100 ppm radius of exposure is approximately 1,592-feet. As there are public roads and public (BLM) lands within these distances, a Public Protection Plan is required for the SEI facility and the B-814 injection well system. Figure 2 shown in Appendix B includes the radius of exposure information.

4.30 PROTECTION OF PERSONNEL

The following safety equipment is available at the Lisbon Gas Plant or at the injection well site:

- First aid kits: small kits stored in buildings and vehicles.
large "jump" kits including advanced treatment supplies.
- Self contained breathing apparatus (SCBA) with 30-minute air tanks.
- Self contained breathing apparatus (SCBA) with 5 to 7-minute air tanks (Escape Packs)

- Air line breathing apparatus with escape bottle for prolonged work. (Cascade system)

The following monitoring equipment is available at the Lisbon Gas Plant or at the injection well site:

- Manually operated portable Sensidyne Gastec monitors with detector tubes designed to monitor both H₂S and SO₂ levels in the atmosphere.
- Electronic personnel monitors with constant digital readout of either Lower Explosive Limit (LEL%), Hydrogen Sulfide concentration (H₂S ppm), or Oxygen (O₂%). All three sensors are constantly active and able to sound an alarm.
- Area monitors are located throughout the injection well system and in the plant buildings for H₂S, Fire, and LEL.

These monitors are connected to a Gaitronic emergency alarm horn capable of five distinct alarms:

Evacuation – Siren	Fire – Hi/Lo
H ₂ S – Yelp	Oxygen – Constant Horn
LEL – Warble	

Testing of all emergency alert and monitoring equipment is conducted on a monthly basis using the appropriate calibration and testing equipment and procedures for each type of sensor or alarm. All documentation of testing is kept on file at the Lisbon Gas Plant main office.

4.40 COMMUNICATIONS

Communication systems at the Lisbon Gas Plant and the SEI Facility include:

- Telephones: Located throughout plant and offices.
- Hand Held radios: Located on operators, mechanics and personnel.
 - o The frequencies are:
 - Tx Freq. 456.550
 - 451.550
 - Rx Freq. 451.550
- Emergency Response radios: Located in Lisbon Gas Plant Training Room.
 - o The frequencies are:
 - Tx Freq. 151.505
 - 152.870
 - 151.520
 - Rx Freq. 151.505
 - 152.870
 - 151.520
- Mobile phones: Located in pickup trucks and control room.

4.50 FIRE CONTROL EQUIPMENT

The following is the fire control equipment available at the Lisbon Gas Plant or at the SEI Facility:

30# Dry Chemical Fire Extinguishers	Located throughout the plant and injection system area at exit locations. Also at key locations outside buildings, where the risk of fire is great.
350# Dry Chemical Fire Extinguishers	Located in key locations where large volumes of dry chemical might be needed.
20# CO2 and Halogen fire extinguishers	Located at MCC buildings where electrical fires are most likely to occur.
2½# Fire Extinguishers	Located at main office in key locations and in company pickups.
AFFF foam vessel AFFF 55-gal drums	Located in the Old Process Building area of the Lisbon Gas Plant. It can be distributed to different areas of the plant where oil spills may occur.
AFFF foam – 5-gallon cans	Located in Lisbon Gas Plant warehouse. Used to inject foam at any location.
Automatic deluge system	Located in the Lisbon Gas Plant
Fire Hose Stations	Located at key locations in the plant area.
Monitor Stations	Located at key locations in the plant area.
Foam Station	Located in the Old Process Building area of the Lisbon Gas Plant.
Volume of Fire water available - 20,000 Barrels	Two 10,000 barrel tanks located on hill east of Lisbon Gas Plant.
Discharge Pressure of Fire water - 150 - 175#	Pressure is provided by one electric pump and one diesel driven pump when electricity is not available.

TESTING OF ABOVE EQUIPMENT

- Automatic Sprinkler system – Tested annually and documented.
- 30# Dry Chemical fire extinguishers - tag checked monthly and tested annually/documentation monthly.
- 350 # Dry Chemical fire extinguishers - Tag checked monthly/tested annually/documentation monthly
- 2 1/2 # Dry Chemical fire extinguishers - Tag checked monthly/tested annually/documentation monthly
- CO2 & Halogen fire extinguishers - Tag checked monthly/tested annually/documentation monthly
- Fire water pumps electric/diesel - Tested weekly/documented
- Volumetric flow rate of fire water - Tested annually
- Monitors and Fire Hose stations - Tested Semi-annually

4.60 DECONTAMINATION EQUIPMENT

Disposable Tyvex suits, SCBA gear, disposable gloves, kiddie pools, pump sprayers, decontamination detergents, neutralizers, rinse water, duct tape, eye protection, brushes, rubber boots and marking tape is available. This equipment is located in the Lisbon Gas Plant Emergency Response Trailer and warehouse.

All equipment used dealing with communication, fire protection, spill control and decontamination is tested, maintained and documented on a regular basis to assure proper operation.

4.70 INTERNAL EMERGENCY RESPONSE

The following emergency response teams/personnel are available at the Lisbon Gas Plant:

- Lisbon Gas Plant Fire Brigade - Certified Trained
- Lisbon Gas Plant HAZMAT Team - Certified Trained
- Confined Space Rescue Team - Certified Trained
- Emergency Medical Technicians - Certified Trained
- All Employees trained in first aid/CPR - Certified Trained

Please refer to the Emergency Contact List in Appendix C for contact information.

4.80 OUTSIDE EMERGENCY AID

External emergency response personnel and services include (but are not limited to) the following:

- Ambulance Service is available from the towns of Moab and Monticello.
- Medical First Responders and Fire response is available from the town of Lasal.
- Air Life Medical transport is available from St. Mary's Hospital in Grand Junction, Colorado.
- Law Enforcement is available from San Juan County Sheriff, Utah Highway Patrol, and the Bureau of Land Management, which respond from Monticello, Utah.

H2S Awareness training is made available annually to all emergency responders.

Please refer to the Emergency Contact List in Appendix C for contact information.

4.90 EMERGENCY PROCEDURES AND NOTIFICATION

All actions taken and procedures used by facility personnel in response to a fire, explosion, or release of hazardous waste are outlined in the Lisbon Gas Plant Emergency Preparedness Plan and Procedure Manual located at the Lisbon Gas Plant Change room and Control room. Other copies are held by key TBI personnel.

Released wastes and liquid are collected and contained using procedures found in the Lisbon Gas Plant Emergency Preparedness Plan and Procedure manual, the Spill Prevention Control and Countermeasure (SPCC) plan, and the Waste Management/Minimization guideline manual. If characterization of a waste is not known, testing is performed to determine the waste classification. All wastes are handled according to their type. If it is a hydrocarbon waste mixed

with soil and contains contaminant concentration levels above the appropriate limits, it is landfarmed on TBI property until it reaches contaminant concentration limits set by the Utah Oil, Gas and Mining Division. If wastes are found that are classified as hazardous wastes, they are disposed of at an appropriate hazardous waste disposal facility.

Notification to Federal, State and Local agencies to report releases of hazardous waste, spills or incidents requiring reporting is accomplished through the Lisbon Gas Plant Spill Prevention Control and Countermeasure plan (SPCC), which follows a formatted initial reporting sequence. This initial report is usually submitted verbally over the phone to the appropriate agency and followed up by a written report within 7 days of the incident.

5.00 HYDROGEN SULFIDE EMERGENCY PROCEDURES

The following procedures should be used when an uncontrolled release of any substance containing H₂S occurs.

- Immediately upon discovery of a potentially hazardous or emergency situation, the Lisbon Gas Plant control room and the on duty supervisor shall be notified. The supervisor who is notified will become the "Incident Commander" and take charge of the response until he is relieved by his supervisor.
- The Emergency will be approached using the "Incident Command System" if no outside aid is required. The "Unified Incident Command System" will be used if public agencies are included in the response.
- At least two people should don fresh air breathing equipment (SCBA) and monitor the air for H₂S to determine both flammable and toxicity and establish safe areas.
- When the emergency response team is in place and equipped for rescue or repair, approach the release with monitors and determine extent of problem from both a flammable and toxic standpoint.
- Determine wind direction and establish a **SAFE ZONE** where response equipment and backup personnel can safely operate.
- Determine if the release threatens county roads or local mines (See Site Map in Appendix B). If either are threatened, activate the Public Protection Procedures in Section 6 of this response guide.
- Conduct a briefing in the **SAFE ZONE** to establish a plan of action for entry and determine what additional personal protective equipment will be required for **ENTRY PERSONNEL AND BACKUP PERSONNEL**.
- Assemble needed equipment in **SAFE ZONE**.
- When a safe plan of action has been agreed upon, **ENTRY PERSONNEL** may approach the release. Backup personnel should remain in the **SAFE ZONE** and be equipped for rescue if it should become necessary.

UNDER NO CIRCUMSTANCES SHOULD CONTROL EFFORTS BE ALLOWED TO PROCEED WHERE PROPER ACTION HAS NOT BEEN TAKEN TO ASSURE THE SAFETY OF RESPONSE PERSONNEL. Workers are considered safe only when they are breathing air with less than 10 parts per million (ppm) of Hydrogen Sulfide.

- Once the release has been controlled and monitoring has shown that the **HOT ZONE** is safe (<10 ppm H₂S and 0% LEL), clean up and repair work may begin.
- Formal notification of the incident should be made through line management.
- A Critique of the incident should follow.

6.00 PROTECTION OF THE GENERAL PUBLIC

6.10 NOTIFICATION OF POTENTIAL DANGER

- Warning signs are prominently displayed at the injection well site and at all access points to the Lisbon Gas Plant and the SEI Facility.
- Written notification will be made to all mineral and grazing lease holders within the calculated potential exposure areas.
- Response planning will be coordinated through the San Juan County Emergency Response Coordinator located in Monticello, Utah.

6.20 EMERGENCY EVACUATION AND ISOLATION OF DANGER AREA

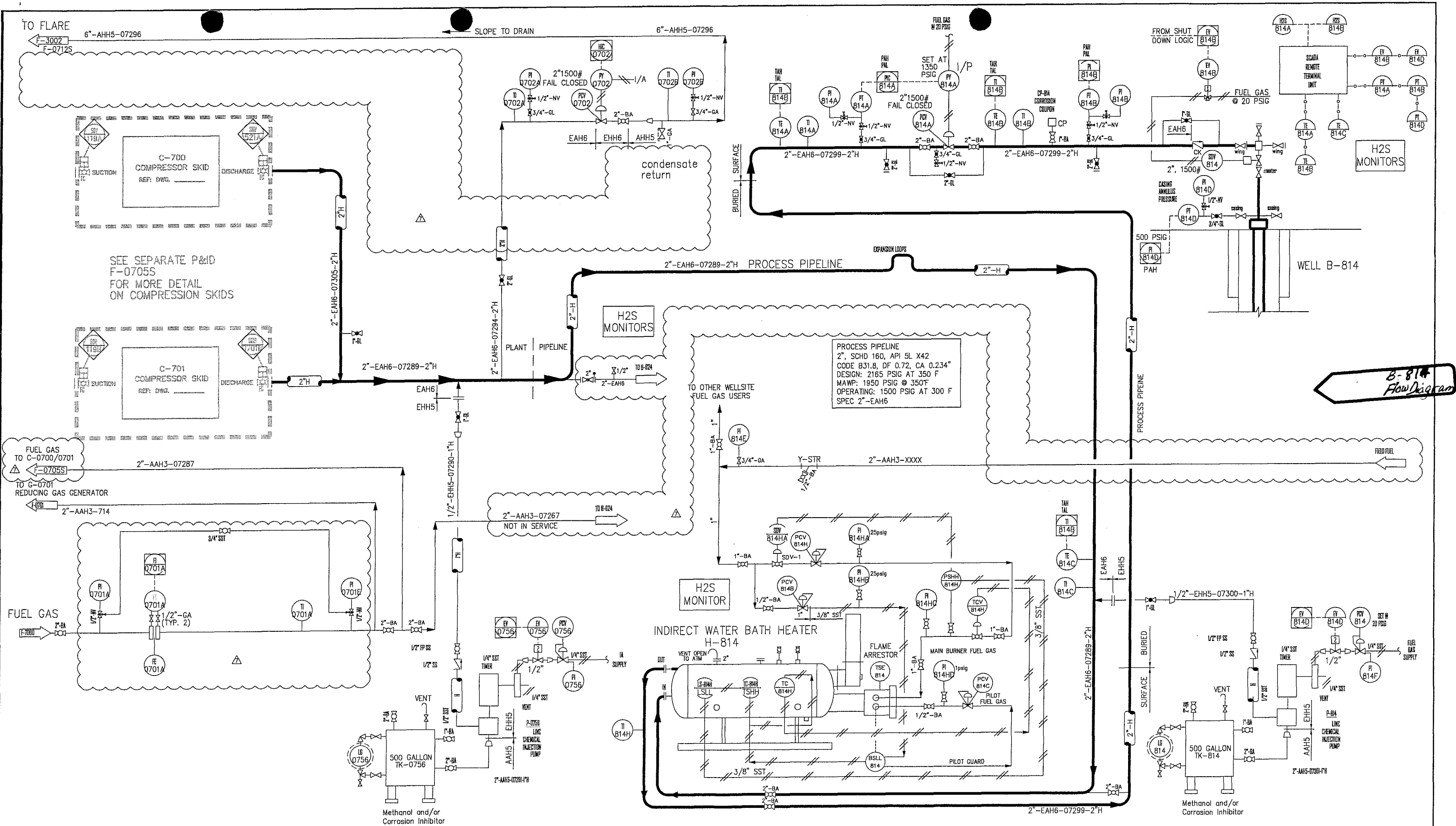
In the event toxic gases are released in such quantities as to be a possible hazard to the public the following steps (in addition to the procedure outlined in Section 5.0) will be taken by the person in charge:

- Choose a command post site in a safe area.
- Alert by telephone the Incident Commander or the Safety Manager and notify the person of the situation and your choice of a command posts.
- Notify local Law Enforcement Officials of the need to restrict entry to the area and the **location of your command post**. Request their assistance in restricting entry into the danger area by placing roadblocks or barriers in safe areas.

Note-Alternate command posts and roadblocks may be required, the Incident Commander may make changes in the locations listed above. Care should be taken to notify all responders of the changes.

- Evacuate all active mines in the danger area. Mine owners have received prior notification that conditions could arise that would require their cooperation in clearing the area.
- Notify all grazing lease holders of the danger and what sections need to be evacuated by humans. (See Appendix D for lease holders names and what land Sections they hold grazing rights on.)
- If evacuation cannot be accomplished in a timely manner and the H₂S release is posing an immediate threat to human life, the Incident Commander may chose to ignite the gas. Because of the increased risks igniting the gas can pose for response personnel, only the Incident Commander can give this order.

APPENDIX A
MECHANICAL FLOW DIAGRAM



REV	DATE	REVISION	BY	CHKD	SECT	CHIEF	PROJ
1	8/23/02	BEFORE HAZOP	SJ		LDR	DRAFT	ENGR
2	9/12/02	AFTER HAZOP	SJ				
3	10/23/02	AFTER EXXON MOBIL REVIEW	DSM	SJ			
4	10/30/02	ISSUED FOR INST. & CONTROLS REVIEW	DSM	SJ			
5	11/21/02	ISSUED FOR CONSTRUCTION	DSM	SJ			
6	1/30/03	REVISED ISSUED FOR CONSTRUCTION	DSM	SJ			
7	6/1/04	NEW INJ. WELL B-814	DSM	WS			

TOM BROWN INC.
LISBON GAS PLANT

SAN JUAN COUNTY
MOAB, UTAH

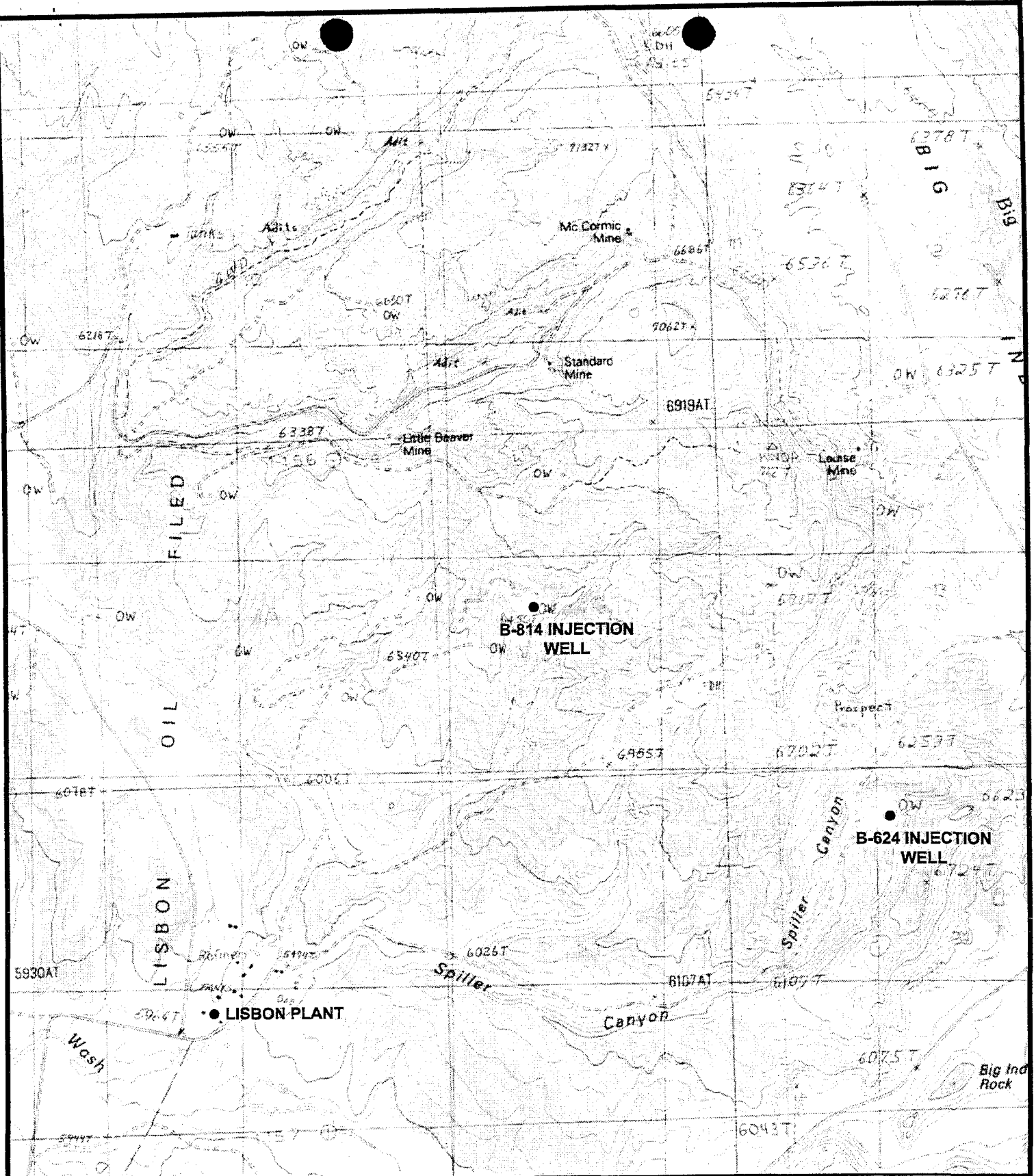
MECHANICAL FLOW DIAGRAM
SULFUR RE-INJECTION PROJECT
INJECTION PIPELINE & WELLBORE

DES.: SGJ
DR.: SGJ
CH.:
APP.:

SCALE: NONE
FILE:
DATE:
DATE:

JOB NO.:
1/30/03
DWG.NO.:
F-0706S
REV:
7

APPENDIX B
FACILITY MAPS



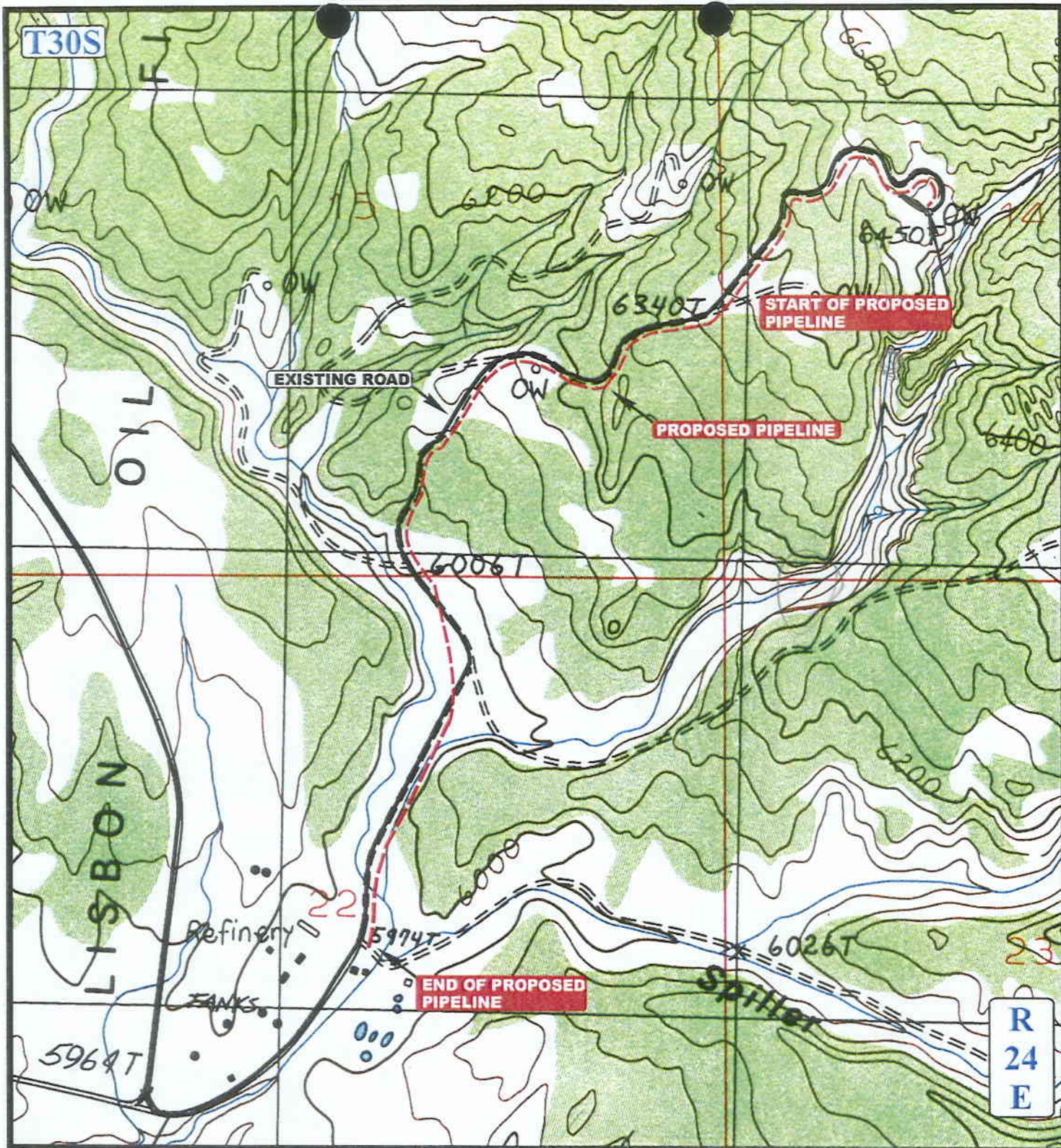
MAP SOURCE: 7.5 MINUTE U.S.G.S. TOPOGRAPHIC MAPS (LISBON VALLEY & SANDSTONE DRAW QUADRANGLES)



FIGURE 1
FACILITY LOCATION MAP
TOM BROWN, INC.
SULFUR ENRICHMENT & INJECTION FACILITY
SAN JUAN COUNTY, UTAH

REVISION DATE:	7/14/04
REVISION NUMBER:	000
DRAWN BY:	DMP
APPROVED BY:	DMP
PROJECT #	EG04126
SCALE:	1:24,000





APPROXIMATE TOTAL PIPELINE DISTANCE = 8800' +/-

LEGEND:

- EXISTING ROAD
- EXISTING PIPELINE
- PROPOSED PIPELINE

TOM BROWN, INC

PROPOSED ACID PIPELINE
SECTIONS 14, 15, & 22,
T30N, R24E, S.L.B.&M.



Uintah Engineering & Land Surveying
85 South 200 East Vernal, Utah 84078
(435) 789-1017 * FAX (435) 789-1813



TOPOGRAPHIC MAP 04 26 04
MONTH DAY YEAR

SCALE: 1" = 1000' DRAWN BY: J.G. REVISED: 00-00-00



Kenny Alfred



LEGEND



= APPROXIMATE BOUNDARY OF 100 ppm. EXPOSURE CONCENTRATION.



= APPROXIMATE BOUNDARY OF 500 ppm. EXPOSURE CONCENTRATION.

MAP SOURCE: 7.5 MINUTE U.S.G.S. TOPOGRAPHIC MAPS (LISBON VALLEY & SANDSTONE DRAW QUADRANGLES)



FIGURE 2
WORST CASE RELEASE INFORMATION
TOM BROWN, INC.
SULFUR ENRICHMENT & INJECTION FACILITY
SAN JUAN COUNTY, UTAH

REVISION DATE:	7/14/04
REVISION NUMBER:	000
DRAWN BY:	DMP
APPROVED BY:	DMP
PROJECT #	EG04126
SCALE:	1:24,000



CORDILLERAN

APPENDIX C
EMERGENCY CONTACT LIST

APPENDIX C EMERGENCY CONTACT LIST

Utah Division of Environmental Quality	800.458.0145
Utah Division of Water Quality	801.538.6146
EPA 24-Hour Spill Notification Number	303.293.1788
Department of Transportation National Response Center	800.424.8802
Utah Division of Oil, Gas, & Mining	801.538.5340
Utah Oil & Gas Conservation Commission	801.538.5277
*Utah State Highway Patrol	800.492.2400
*Utah State Highway Patrol-Hazardous Materials Division	435.336.4461
*Ambulance Service (Moab)	435.259.8115
*Ambulance Service (Monticello)	435.587.2237
Ambulance Service (Grand Junction Air Life)	800.332.4923
*Hospital (Allen Memorial-Moab)	435.259.7191
*Hospital (San Juan Hospital)	435.587.2116
*Grand County Sheriff	(Moab) 435.259.8115
*San Juan County Sheriff	(Monticello) 435.587.2237
*Moab Area Fire Department	435.259.5551
*LaSal Area Fire Department	435.686.2388
*Monticello Area Fire Department (Contact through San Juan County Sheriff)	435.587.2237
*Blanding Area Fire Department	435.678.2313
U.S. Dept. of Interior, Bureau of Land Management	970.878.5555
Moab Field Office	435.259.6111
Tom Brown Corporate Office	303.260.5000
Tom Brown Lisbon Gas Plant Office	435.686.7600
Tom Brown Lisbon Gas Plant Control Room	435.686.7620
Tom Brown Lisbon Gas Plant Control Room (24 Hour Emergency Number)	435.686.2271
Steve Jones, Lisbon Gas Plant Superintendent	435.686.7603
	435.686.7615
Rick Costanza, Field Supervisor	435.686.7612
Kenny Allred, Corporate Safety Manager	435.686.7604

*= these are non-emergency numbers. Emergency calls should dial 911.

APPENDIX D
LEASE HOLDER INFORMATION

APPENDIX D
LEASE HOLDER INFORMATION

MINE OPERATORS & NOTIFICATION ADDRESSES

Anderson, James, Estate, Box 9196, Salt Lake City, UT, 84109
Atlas Corporation, Box 1207, Moab, UT, 84532
Bailey, Rick, P.O. Box 1129, Monticello, UT, 84535
Baker, W.V., 1766 W 4575 S, Roy, UT, 89510
Baker, W.V., Box 10628, Reno, NV, 89510
Birch, Arthur, 190 W. Canter, Huntington, UT, 84501
Boyd, Maxine S., 1490 E. 500 South #28, Price, UT, 84501
Brown, Nancy, 8604 E. Devonshire, Scottsdale, AZ, 85251
Butzow, George, Box 713, Huntington, UT, 84528
Butzow, Tonia, Box 713, Huntington, UT, 84528
Clemons, Paul B., 8604 E. Devonshire, Scottsdale, AZ, 85251
Crowley, Delsie, 1501 S. Mesa, Montrose, CO, 81401
Dearth, A.E., 672 Mivida Dr., Moab, UT, 84532
Dearth, A.F., 54 S. Flora Way, Golden, CO, 80401
F804 Inc., 2800 S. University Blvd., Denver, CO, 80210
Francis, Clara, 420 Topaz Circle, Moab, UT, 84532
Francis, Lyle G., 420 Topaz Circle, Moab, UT, 84532
Francis, Lyle, 420 Topaz Circle, Moab, UT, 84532
Giles, Albert, % Bob Shumway, 3080 Spanish Trail Dr., Moab, UT, 84532
Hart, C.J., 97417 1/4 Rd., Fruita, CO, 81521
Hart, C.J., Box 1075, Vernal, UT, 84078
Hart, C.J., Box 2492, Durango, CO, 81302
Hart, C.J., Box 267, Durango, CO, 81521
Hart, C.J., Box 3037, Durango, CO, 81302
Hart, C.J., Box 713, Huntington, UT, 84528
Heda Mining Company, Box C 8000, Cofeur D Alene, ID, 83814
Homestead Mining CO/CA, 155 Glendale #18, Sparks, NV, 89431
Homestead Mining CO/CA, 1726 Cole Boulevard, Golden, CO, 80401
Homestead Mining CO/CA, 650 California St. 9th Floor, San Francisco, CA, 94108
Homestead Mining CO/CA, 7625 W. 5th Ave., Lakewood, CO, 80226
Homestead Mining CO/CA, Box 10628, Reno, NV, 89510
Homestead Mining CO/CA, Box 89510, Reno, NV, 89510

Homestead Mining Co/CA,7625 West 5th Avenue,LakeWood,CO,80226
Hudson,H. Clay,Box 10628,Reno,NV,89510
Hudson,T.C.,Box 10628,Reno,NV,89510
Hudson,W.T.,155 Glendale #18,Sparks,NV,89431
Hudson,W.T.,7625 W. 5th Ave.,Lakewood,CO,80226
Kemper,R.B.,10720 McCume Ave.,Los Angeles,CA,90034
Kunkel,Burton F. c/o Bob Shumway,3080 Spanish Trail Dr.,Moab,UT,84532
Kunkel,Raymond E.,33 Holiday Haven,Moab,UT,84532
Kunkel,Raymond E.,8664 Monmouth Pl.,Denver,CO,80237
Lawther,Hazel A.,156 N. Fraser Dr. W.,Mesa,AZ,85203
McCormick,Patricia,Box 149,Aurora,MO,62505
Melich,Mitchell,900 Donner Way,Salt Lake City,UT,84108
Mundy,H.N.,Box 10628,Reno,NV,89510
Osanke,Mary Lou,Box 1230,Ely,NV,89301
Osanke,Mary Lou,Box 193,LaSal,UT,84530
Osanke,Steve,Box 1230,Ely,NV,89301
Osanke,Steve,Box 192,LaSal,UT,84530
Powell,Claudette,180 Braewick Rd.,Salt Lake City,UT,84103
Powell,Claudette,Box 713,Huntington,UT,84528
Powell,Cory,Box 713,Huntington,UT,84528
Powell,Phillip,Box 713,Huntington,UT,84528
Powell,Zachary,Box 713,Huntington,UT,84528
Redd,Paul,20923 T5 Road, Paradox,CO,81429
Richardson,Frank,Box 10628,Reno,NV,89510
Robinson,Dean (K.S. Summers),P.O. Box 67,Monticello,UT,84535
Rogers,Anna,Box 10628,Reno,NV,89510
Rogers,L.E.,Box 10628,Reno,NV,89510
Shumway,Bob, 3080 Spanish Trail Dr.,Moab,UT,84532
Standard Metals,P.O. Box 247,Silverton,CO,81433
Steen,Andrew K.,7621 El Monte Dr., Buena Park,CA,90621
Steen,Charles A.,7621 El Monte Dr.,Buena Park,CA,90621
Strode,Gary L.,62266 N. Star Dr.,Montrose,CO,81401
Umetco Minerals Corporation,Box 1029,Grand Junction,CO,81502
Uranium King Corporation,Box 1408,Coralles,NM,87045
Westmont Engineering Company c/o Bob Shumway,3080 Spanish Trail Dr.,
Moab,UT,84532,

GRAZING LEASE HOLDERS

SECTIONS 19, 24

Rick Bailey, (Spring Creek Ranch) Phone (435) 587-2313
P.O. Box 1129
Monticello, Utah 84535

SECTIONS 10, 11, 14, 15, 21, 22, 23, 26, 27

Dean Robinson (K. S. Summers), Phone (435) 587-2333
P.O. Box 67
Monticello, Utah 84535

SECTIONS 2, 3, 4, 9, 10, 11, 12, 13, [33 (BI#1)]

Paul Redd, Phone (970) 859-7358
20923 T5 Road
Paradox, Colorado 81429

APPENDIX E
TSCREEN OUTPUT DATA

B-814 Worst Case Release

TOTAL AMOUNT OF MATERIAL RELEASED (G): .2300E+07
 RELEASE HEIGHT ABOVE GROUND (M): 1.000
 INITIAL LATERAL DISPERSION SIGMA (Y) (M): .0000
 INITIAL VERTICAL DISPERSION SIGMA (Z) (M): .0000

 *** SUMMARY OF PUFF MODEL RESULTS ***

THE MAXIMUM CONCENTRATION AND THE DISTANCE TO MAXIMUM
 CONCENTRATION FOR DISTANCES BEYOND FENCELINE .010 (KM).
 FOR NEAR SURFACE RELEASE MAXIMUM CONCENTRATION WILL OCCUR AT
 THE FENCELINE.

AVERAGING TIME (MIN)	MAXIMUM CONCENTRATION (G/M**3)	DISTANCE TO MAX. CONC. (KM)	STABILITY CLASS
INSTANTANEOUS	2.312E+07	.010	S
1	3.859E+05	.010	S
5	7.717E+04	.010	S
15	2.572E+04	.010	S
* 60	6.431E+03	.010	S

 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

 *** PUFF DISTANCES ***

THE MAXIMUM CONCENTRATION AS A FUNCTION OF DOWNWIND DISTANCE
 AND THE CONDITIONS THAT PRODUCED THE MAXIMUM AT THAT DISTANCE.

MIXING HEIGHT (M) 320.
 WIND SPEED (M/SEC) 1.0

AVERAGING TIME (MIN)	DOWNWIND DISTANCE (KM)					
	MAXIMUM CONCENTRATION (G/M**3) AT VARIOUS DOWNWIND DISTANCES. STABILITY CLASS THAT PRODUCED THE MAX. LISTED BELOW					
	0.01	0.03	0.05	0.07	0.1	0.5
INST.	2.312E+07	3.450E+06	1.156E+06	5.391E+05	2.356E+05	5.167E+03
	S	S	S	S	S	S
1	3.859E+05	7.426E+04	3.451E+04	2.083E+04	1.220E+04	1.091E+03
	S	S	S	S	S	S
5	7.717E+04	1.485E+04	6.902E+03	4.167E+03	2.440E+03	2.183E+02
	S	S	S	S	S	S
15	2.572E+04	4.951E+03	2.301E+03	1.389E+03	8.135E+02	7.276E+01
	S	S	S	S	S	S
*60	6.431E+03	1.238E+03	5.752E+02	3.472E+02	2.034E+02	1.819E+01
	S	S	S	S	S	S

AVERAGING DOWNWIND DISTANCE (KM)

TIME (MIN) MAXIMUM CONCENTRATION (G/M**3) AT VARIOUS DOWNWIND DISTANCES.
 STABILITY CLASS THAT PRODUCED THE MAX. LISTED BELOW

	1.0	3.0	5.0	7.0	10.0	30.0
=====						
INST.	9.868E+02	7.147E+01	2.108E+01	9.433E+00	4.022E+00	2.911E-01
	S	S	S	S	S	S
1	3.853E+02	5.735E+01	1.919E+01	8.951E+00	3.911E+00	2.900E-01
	S	S	S	S	S	S
5	7.717E+01	1.485E+01	6.902E+00	4.148E+00	2.346E+00	2.643E-01
	S	S	S	S	S	S
15	2.572E+01	4.951E+00	2.301E+00	1.389E+00	8.135E-01	1.535E-01
	S	S	S	S	S	S
*60	6.431E+00	1.238E+00	5.752E-01	3.472E-01	2.034E-01	3.914E-02
	S	S	S	S	S	S

STABILITY CLASSES

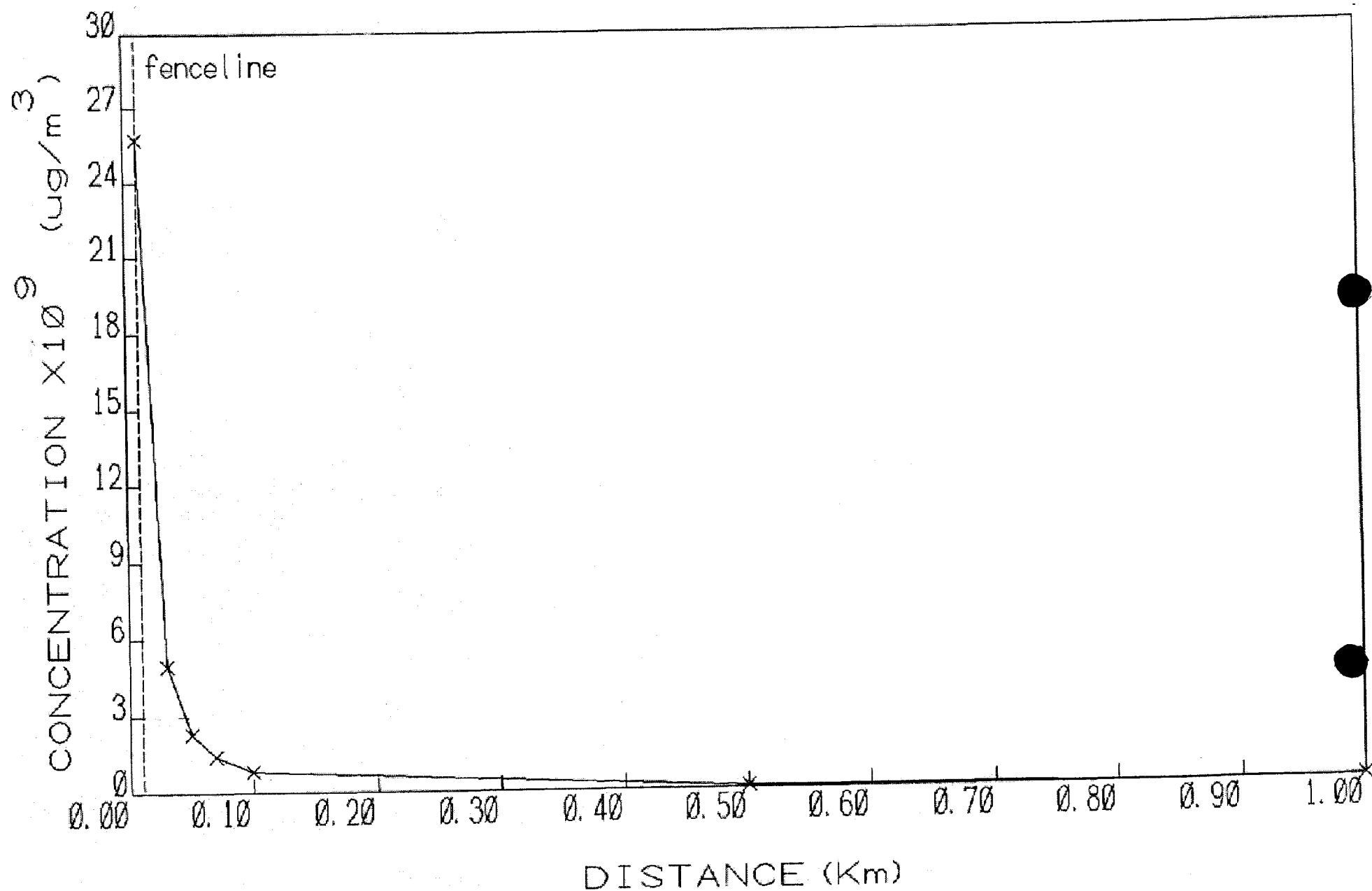
U = UNSTABLE

N = NEUTRAL

S = STABLE

* INDICATES AVERAGING TIME THAT WAS SELECTED FOR PLOTTING

 *** END OF PUFF MODEL OUTPUT ***



Maximum concentration $2.572\text{E}+010$ micrograms/cubic meter at 0.010 Km

APPENDIX F
HYDROGEN SULFIDE MSDS

Hydrogen Sulfide**1. PRODUCT AND COMPANY IDENTIFICATION****Product Name:** Hydrogen Sulfide**Formula:** H₂S**Molecular Weight:** 34.08**Chemical Name:** Hydrogen Sulfide**Chemical Family:** Inorganic Sulfides**CAS#** 7783-06-4**Synonyms:** Hydrogen sulphide, sulfuretted hydrogen, hydrosulfuric acid**Product Use:** Purification of acids, and wastewater and in the manufacture of sulfur and organosulfur compounds

MARSULEX Inc.
111 Gordon Baker Road
Suite 300
North York, ON
M2H 3R1
(416) 496-9655

MARSULEX Inc.
11652 -99th Avenue
Fort Saskatchewan
Alberta T8L 2T2
(780) 998-2225

Emergency Telephone Number

Chemtrec 1-800-424-9300

Canutec (613) 996-6666

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Ingredients</u>	<u>% by Wt.</u>	<u>CAS Number</u>
Hydrogen Sulfide	99.9	7783-06-4

3. HAZARD INFORMATION**EMERGENCY OVERVIEW:**

DANGER! Colorless gas with rotten egg odor. POISON. EXTREMELY FLAMMABLE. May be fatal if inhaled. Causes eye irritation. Heavier than air. May accumulate in low places such as pits, trenches, well cellars and sumps. Odor of rotten eggs is not a dependable indicator of presence of hydrogen sulfide at concentrations over 100 ppm. When burned, hydrogen sulfide forms sulfur dioxide, a poisonous, colorless gas with a pungent odor. Read the entire MSDS for a more thorough evaluation of the hazards.

National Fire Protection Association (NFPA) Rating**Hazardous Materials Identification System (HMIS) Rating**

	NFPA	HMIS
HEALTH	4	4
FIRE	4	4
REACTIVITY	0	0
SPECIAL		

4 = Extreme/Severe

3 = High/Serious

2 = Moderate

1 = Slight

0 = Minimum

W = Water Reactive

Hydrogen Sulfide

3. HAZARD INFORMATION (continued)

POTENTIAL HEALTH EFFECTS:

Exposure Limits:

	ACGIH (TLV)*	OSHA (PEL)
Hydrogen Sulfide	10 ppm (14 mg/m ³) (TWA)	10 ppm (14 mg/m ³) (TWA)
	15 ppm (21mg/m ³) (STEL)	15 ppm (21mg/m ³) (STEL)
		20 ppm (Ceiling)

*-NOTICE OF INTENDED CHANGE: A decrease of the TLV-TWA to 5 ppm and the deletion of the STEL are proposed.

POTENTIAL HEALTH EFFECTS:

Eye Contact: Inflammation and irritation of the eyes can occur at very low airborne concentrations (sometimes less than 10 ppm). Exposure over several hours or days may result in "gas eyes" or "sore eyes" with symptoms of scratchiness, irritation, tearing and burning. Above 50 ppm, there is intense tearing, blurring of vision and pain when looking at light. The victim may see rings around bright lights. Most symptoms disappear when exposure ceases. However, in serious cases the eye may be permanently damaged. Contact with liquid H₂S may freeze the eye and cause severe damage or blindness.

Skin Contact: Rarely, the gas may irritate the skin. Contact with liquid H₂S can cause frostbite (freezing of the tissue).

Inhalation: At concentrations of 0.13 to 30 ppm, the odor is obvious and unpleasant. At 50 ppm, marked dryness and irritation of the nose and throat occurs. Prolonged exposure may cause a runny nose, cough, hoarseness, shortness of breath and pneumonia. At 100-150 ppm, there is a temporary loss of smell. At 200 to 250 ppm, H₂S causes severe irritation as well as symptoms such as headache, nausea, vomiting and dizziness. Prolonged exposure may cause lung damage (build-up of fluid in the lungs). Exposure for 4 to 8 hours can cause death. Concentrations of 300-500 ppm cause these same effects sooner and more severely. Death can occur in 1 to 4 hours. At 500 ppm, excitement, headache, dizziness, staggering, unconsciousness and respiratory failure occur in 5 minutes to 1 hour. Death can occur in 30 minutes to 1 hour. Exposures above 500 ppm rapidly cause unconsciousness and death. Severe exposures, which do not result in death, may cause long-term symptoms such as memory loss, paralysis of facial muscles or nerve tissue damage.

Ingestion: Not applicable.

Existing Medical Conditions Possibly Aggravated By Exposure: Breathing of vapors may aggravate neurological, eye and respiratory conditions.

Chronic Effects: No evidence.

Carcinogenicity: Hydrogen sulfide is not classified as a carcinogen by NTP (National Toxicology Program), IARC (International Agency for Research on Cancer), ACGIH (American Conference of Governmental Industrial Hygienists) and not regulated as a carcinogen by OSHA (Occupational Safety and Health Administration).

Hydrogen Sulfide**4. FIRST AID MEASURES**

General: Take proper precautions to ensure your own safety before attempting rescue; e.g., wear appropriate protective equipment. Effects of contact or inhalation may be delayed. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Skin Contact: If the liquid is splashed on the skin, as quickly as possible, flush contaminated area with lukewarm, gently running water for at least 20 minutes. Under running water, carefully cut around clothing that sticks to damaged skin and remove rest of garment. Obtain medical attention immediately. Completely decontaminate clothing, shoes and leather goods before re-use, or discard.

Eye Contact: If irritation occurs, immediately flush eyes with running water for a **minimum** of 20 minutes. Hold eyelids open during flushing. Obtain medical attention IMMEDIATELY.

Inhalation: Remove source of contamination or move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give Cardiopulmonary Resuscitation (CPR) only if there is no pulse AND no breathing. Oxygen may be beneficial if administered by a person trained in its use, preferably on a physician's advice. Obtain medical attention IMMEDIATELY.

Ingestion: Not applicable.

5. FIRE FIGHTING MEASURES

Flash Point (method): Not applicable, product is a gas.

Autoignition Temperature: 260°C (500°F)

Flammability Limits in air(%): UEL: 44% LEL: 4.0%

Fire and Explosion Hazards: Oxides of sulfur may be produced in fire.

Extinguishing Media: Water spray, dry chemical, "alcohol" foam or carbon dioxide

Special Fire Fighting Procedures: H₂S is extremely toxic. Fight fires from safe distance or protected location. Stay upwind. Wear full protective equipment. H₂S may travel some distance along the ground to a source of ignition and flash back. It may collect in lower, poorly ventilated areas. Water or foam may cause frothing. Use water to keep fire-exposed containers cool, to flush spills away from populated areas and to dilute spills to non-combustible mixtures. Stop escaping flow of gas rather than extinguish the fire. If fire is extinguished and gas continues to escape, an explosive mixture could form. If necessary to extinguish the fire, use carbon dioxide or dry chemical.

NOTE: Also see "Section 10 - Stability and Reactivity"

Hydrogen Sulfide**6. ACCIDENTAL RELEASE MEASURES**

Steps to be taken in the event of a spill or leak: Evacuate area immediately. Restrict access to area until completion of clean up. Ensure clean up is conducted by trained personnel only. Remove all ignition sources (no smoking, flares, sparks or flames). All equipment should be grounded. Ventilate area and stay upwind. Use appropriate Personal Protection Equipment. Stop or reduce leak if safe to do so.

Liquid H₂S: Do not touch spilled material. Prevent material from entering sewers or confined spaces. Stop or reduce leak if safe to do so. If not, allow liquid to vaporize.

Gaseous H₂S: Stop or reduce leak if safe to do so. If source of the leak is a cylinder and the leak cannot be stopped safely, move the cylinder to a safe place in the open air. If possible, repair the leak or allow the cylinder to empty.

In the case of a large spill, evacuation of populated areas downwind may have to be considered. Deliberate ignition and controlled burn of escaping hydrogen sulfide should be considered in order to reduce the risk to adjacent areas.

Comply with Federal, Provincial/State and local regulations on reporting releases.

Note -Spills are subject to CERCLA reporting requirements: RQ = 100 lbs (45.4 kg).

AIHA- Emergency Response Planning Guidelines (ERPGs)

ERPGs are for community emergency planning limits and not workplace exposure limits.

ERPG-1 : 0.1 ppm

ERPG-2 : 30 ppm

ERPG-3 : 100 ppm

The ERPG-1 is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing other than mild transient adverse health effects or perceiving a clearly defined, objectionable odor.

The ERPG-2 is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing or developing irreversible or other serious health effects or symptoms, which could impair an individual's ability to take protective action.

The ERPG-3 is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing or developing life-threatening health effects.

7. HANDLING AND STORAGE

Precautions: Never work alone when handling H₂S. Someone must be in communication at all times and be equipped and trained to rescue. If H₂S is released, immediately put on a respirator and leave the area until the severity of the release is determined. If necessary to enter an area contaminated with H₂S, follow precautions for confined space entry including use of a supplied-air respirator with full facepiece, adequate communication, safety belts and lifelines. People working with this chemical should be properly trained regarding its hazards and its safe use.

Handling Procedures and Equipment: Keep H₂S away from sparks, flames and other ignition sources. Post "NO SMOKING" signs in area of use. Do not use near welding operations, flames, or hot surfaces. Prevent release of gas into workplace air. Since the sense of smell cannot be relied upon to detect the presence of H₂S, the concentration should be measured by the use of fixed or portable devices. Ground all cylinders. Move cylinders by hand-truck or cart designed for that purpose. Do not lift cylinders by their caps or handle them with oily hands. Secure cylinders in an upright position at all times. Do not drop or permit cylinders to bang against each other. Leave valve cap on cylinder until it is secured and ready for use. Close all valves when not in actual use. Make sure valves on cylinders are fully opened when used. Open and shut valves at least once a day, while cylinder is in use, to avoid valve "freezing". Use the smallest amount possible

Hydrogen Sulfide**7. HANDLING AND STORAGE (continued)**

in designated areas with adequate ventilation. Have emergency equipment available. Label containers and keep closed when not in use. Empty containers may contain hazardous residues.

Storage Requirements: Store in a cool, dry, well-ventilated area, out of direct sunlight. Outside or detached storage is preferred. Store away from heat and ignition sources, incompatible materials, and cylinders or other containers under high pressure. Use grounded, non-sparking ventilation systems and electrical equipment that does not provide a source of ignition. Use corrosion-resistant structural materials, lighting and ventilation systems in storage area. Store cylinders at or above ground level, upright on a level, fireproof floor. Keep cylinders secured in position and protected from damage. Keep cylinder valve cover on. Label empty cylinders. Store full cylinders separately from empty ones. Consider leak detection and alarm systems, as required. Limit quantity in storage. Restrict access to storage area and post warning signs. Keep storage area separate from populated work areas. Inspect periodically for deficiencies such as damage or leaks. Have fire extinguishers available in and near the storage area. Comply with all applicable regulations for the storage and handling of compressed gases and flammable materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Recommendations listed in this section indicate the type of equipment, which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

Engineering Controls: Engineering control methods to reduce hazardous exposures are preferred. Methods include mechanical ventilation (dilution and local exhaust) and process or personnel enclosure. Administrative controls and personal protective equipment may also be required. Because of the high potential hazard associated with this substance, stringent control measures such as enclosure or isolation may be necessary. A continuous monitoring system with alarm is recommended in areas where H₂S is used. Use a non-sparking, grounded, corrosion-resistant ventilation system separate from other exhaust ventilation systems. Exhaust through a scrubber directly to the outside. Supply sufficient replacement air to make up for air removed by exhaust systems.

Skin Protection: Chemical protective gloves, coveralls, boots, and/or other resistant protective clothing should be worn if there is potential for contact with the liquid. Have a safety shower/eye-wash fountain readily available in the immediate work area. A chemical protective full-body encapsulating suit and respiratory protection may be required in some operations.

Resistance of materials for protective clothing : Guidelines for hydrogen sulfide:

RECOMMENDED (resistance to breakthrough longer than 8 hours): Tychem 10000(TM).

RECOMMENDED (resistance to breakthrough longer than 4 hours): Teflon(TM).(8)

RECOMMENDED (estimated resistance to breakthrough longer than 4 hours): Responder(TM).

NOT RECOMMENDED for use (resistance to breakthrough less than 1 hour): CPF3(TM).

Recommendations are valid for permeation rates reaching 0.1 ug/cm²/min or 1 mg/m²/min and over. Resistance of specific materials can vary from product to product. Breakthrough times are obtained under conditions of continuous contact, generally at room temperature. Evaluate resistance under conditions of use and maintain clothing carefully.

Hydrogen Sulfide**8. EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)**

Respiratory Protection: NIOSH recommendations for hydrogen sulfide concentrations in air.

- Up to 100 ppm: Powered air-purifying respirator with cartridge(s) to protect against hydrogen sulfide; or gas mask with canister to protect against hydrogen sulfide; or SAR*; or full-facepiece SCBA.
- Emergency or planned entry into unknown concentrations or IDLH conditions: Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.
- ESCAPE: Gas mask with canister to protect against hydrogen sulfide; or escape-type SCBA.
- NOTE: The IDLH concentration for hydrogen sulfide is 100 ppm.

*NOTE: Substance reported to cause eye irritation or damage; may require eye protection.

ABBREVIATIONS: SAR = supplied-air respirator; SCBA = self-contained breathing apparatus. IDLH = Immediately Dangerous to Life or Health.

Eye Protection: Tight-fitting chemical safety goggles. A face shield may also be necessary if there is potential for contact with liquid H₂S.

EXPOSURE GUIDELINES:**HAZARDOUS INGREDIENT(S):****Hydrogen Sulfide:**

ACGIH TLV	10 ppm (14 mg/m ³) (TWA)*
ACGIH STEL	15 ppm (21 mg/m ³)*
OSHA PEL	10 ppm (14 mg/m ³) (TWA)
NIOSH Immediately Dangerous to Life and Health Level (IDLH)	100 ppm (IDLH)

TLV COMMENTS :*NOTICE OF INTENDED CHANGE: A decrease of the TLV-TWA to 5 ppm and the deletion of the STEL are proposed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Gas

Appearance and Odor: Colorless gas or pressurised liquid with offensive odor

Odor Threshold: 0.13 ppm.

Boiling Point: -60.2°C (-76.4°F) at 1 atm,

Melting/Freezing Point: -82.9°C (-117.2°F) at 1 atm,

Vapor Pressure: 1875 kPa at 20°C

Vapor Density: 1.189 (air = 1)

Bulk Density: Saturated Gas: 31.04 kg/m³ at 21.1°C (70° F)
Saturated Liquid: 774.2 kg/m³ at 21.1°C (70° F)

Evaporation Rate: Not applicable

Solubility: 437 mL of gas in 100 mL of water at 0°C; 186 mL of gas in 100 mL of water at 40°C. Soluble in hydrocarbon solvents, ether, alcohol, glycerol and carbon disulfide.

pH: 4.1 (0.1N aqueous solution)

Hydrogen Sulfide**10. STABILITY AND REACTIVITY**

Stability: Stable

Conditions to Avoid: Keep away from heat and sources of ignition.

Materials to Avoid:

- Oxidizing agents (e.g. peroxides and nitrates) - May react violently or explosively.
- Forms explosive reactions with bromine pentafluoride, chlorine trifluoride, nitrogen triiodide, nitrogen trichloride, oxygen difluoride and phenyl diazonium chloride.
- Metals (e.g. copper, lead) - Forms metal sulfides.
- Metal oxides (e.g. nickel oxide) - Oxidizes and can ignite.

Corrosivity to Metals: Corrosive. Reacts to form metal sulfides. Anhydrous hydrogen sulfide has low general corrosivity toward carbon steel, aluminum, Inconel, Stellite and 300-series stainless steels at moderate temperatures. Temperatures greater than ca 260°C can produce severe sulfidation of carbon steel. Wet hydrogen sulfide can be quite corrosive to carbon steel.

Hazardous Decomposition or Combustion Products: Toxic oxides of sulfur.

Hazardous Polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

Toxicological Data:

Human toxicity values:

Man: lethal: 600 ppm/30 min; 800 ppm, immediate /lethality/
severe toxic effects 200 ppm = 280 mg/cu m 1 min
symptoms of illness 50 ppm = 70 mg/cu m

Animal toxicity values:

LC50 (rats): 444 ppm; 4-hr exposure
LC50 (mice): 673 ppm; 1-hr exposure.
LC50 (rats and mice): 1000 ppm; 15-30 min exposure
LC50 (female mice): 985 ppm; 15-30 min exposure

Carcinogenicity: Hydrogen sulfide is not classified as a carcinogen by NTP (National Toxicology Program), IARC (International Agency for Research on Cancer), ACGIH (American Conference of Governmental Industrial Hygienists) and not regulated as a carcinogen by OSHA (Occupational Safety and Health Administration).

Reproductive Effects: No evidence.

Mutagenicity Data: No evidence.

Teratogenicity Data: No evidence.

Synergistic Materials: None known

Hydrogen Sulfide

12. ECOLOGICAL INFORMATION

Atmospheric Fate: The lifetime of hydrogen sulfide is affected by ambient temperature and other atmospheric variables including humidity, sunshine, and presence of other pollutants. Once released into the atmosphere, hydrogen sulfide will behave like many other gaseous pollutants and be dispersed and eventually removed. Residence times in the atmosphere range from about one day to more than 40 days, depending upon season, latitude, and atmospheric conditions.

Soil Adsorption/Mobility: When it is spilled onto soil, much will evaporate. However, since it is very soluble in water, the presence of water in soil or falling as precipitation at the time of the spill may contribute to movement in the soil. If the soil surface is saturated with moisture at the time of the spill as might be the case after a rainfall, the spilled chemical will run off and/or evaporate away.

Degradation: Microorganisms in soil and water are involved in oxidation-reduction reactions, which oxidize hydrogen sulfide to elemental sulfur. Abiotic Degradation: Hydrogen sulfide does not absorb solar radiation reaching the troposphere. It does not, therefore, undergo photolysis or react photochemically with oxygen. The primary chemical transformation of hydrogen sulfide in the atmosphere is oxidation by oxygen containing radicals to sulfur dioxide and sulfates.

Bioconcentration: Does not have bioaccumulation or food chain contamination potential.

Ecotoxic Effects: Harmful to aquatic life. Fish toxicity;

TLm *Lepomis macrochirus* (bluegill sunfish) eggs 0.0190 mg/l/72 hr at 21-22° C in a flow through bioassay
TLm *Lepomis macrochirus* (bluegill sunfish) 35 day old fry 0.0131 mg/l/96 hr at 21-22°C in a flow through bioassay.
TLm *Lepomis macrochirus* (bluegill sunfish) juveniles 0.0478 mg/l/96 hr at 21-22°C in a flow through bioassay
TLm *Lepomis macrochirus* (bluegill sunfish) adults 0.0448 mg/l/96 hr at 21-22 °C in a flow through bioassay
TLm *Pimephales promelas* (fathead minnow) 0.0071-0.55 mg/l/96 hr at 6-24°C in a flow through bioassay
TLm *Salvelinus fontinalis* (brook trout) 0.0216-0.038 mg/l/96 hr at 8-12.5°C in a flow through bioassay

Invertebrate And Microbial Toxicity: Black sea mussels exposed to hydrogen sulfide exhibited changes in protein-carbohydrate metabolism, total proteins, lactate and pyruvate, and transamination enzyme activity in the mussel haemolymph. LC50 (96 hr) *Asellus* 0.11 mg / l.

13. DISPOSAL CONSIDERATIONS

Do not dispose of waste with normal garbage, or to sewer systems.

- Responsibility for proper waste disposal is with the owner of the waste. Work with the appropriate regulatory bodies to ensure compliance with regulations.
- It may be possible to make waste H₂S gas harmless by dissolving it in a sodium hydroxide scrubber, or by burning the H₂S and absorbing the resulting sulfur dioxide.
- Trained, experienced personnel must perform waste treatment procedures with appropriate protective equipment in approved treatment facilities.
- Clean-up material may be a RCRA Hazardous Waste on disposal.
- Provincial/State or local regulations or restrictions are complex and may differ from Federal regulations.
- The information applies to the material as manufactured. Processing, neutralizing, use or contamination may make the information inappropriate, inaccurate or incomplete.

Hydrogen Sulfide

14. TRANSPORT INFORMATION

U.S. (Under DOT)

Shipping Name: Hydrogen Sulfide
Hazard Class or Division: 2.3
Product Identification No. (PIN): UN1053
LABEL(S): 2.3 - Poison Gas
2.1 - Flammable Gas

RQ: 100 lb (45.4 kg)

Special Provisions :

T26 - Minimum shell thickness
B14 - Insulation required on bulk packaging.
B9 - Bottom outlets not authorized.
2 - Poison, Inhalation Hazard, Hazard Zone B.

Limits to Mode or Method of Transport :

PACKAGING EXCEPTIONS: None
PASSENGER AIRCRAFT/RAIL: Forbidden
CARGO AIRCRAFT ONLY: Forbidden

Canada (Under TC)

Shipping Name: Hydrogen sulphide
Classification(s): 2.3 (2.1)
Product Identification No. (PIN): UN1053

Regulated Limits: 230 Kg

Special Provisions :

102. "SPECIAL COMMODITY" or "MARCHANDISE SPECIALE" required on shipping document when transported by rail.

Other Requirements: ERAP required for quantities exceeding 3,000 kg

Limits to Mode or Method of Transport :

CONSUMER COMMODITY: Prohibited
LIMITED QUANTITY: Prohibited
PASSENGER VEHICLES: Prohibited
PASSENGER SHIP: Prohibited

15. REGULATORY INFORMATION

U.S.A.**SARA Title III HAZARD CATEGORIES AND LISTS****Product Hazard Categories**

Acute (Immediate) Health:	Yes
Chronic (Delayed) Health:	No
Fire:	Yes
Reactivity:	No
Sudden Release of Pressure:	No

Lists

Extremely Hazardous Substance (40 CFR 355, SARA Title III Section 302)	Yes
CERCLA Hazardous Substance (40 CFR 302.4)	Yes
Toxic Chemical (40 CFR 372.65, SARA Title III Section 313)	Yes

Reportable Quantity (RQ) under U.S. EPA CERCLA: RQ=100 lb / 45.4 kg

OSHA Classification: Highly Hazardous Chemical (29 CFR 1910.119)
The Threshold Quantity (TQ) for this substance is 1,500 lbs.



MATERIAL SAFETY DATA SHEET

Hydrogen Sulfide

TSCA Inventory Status: Reported/Included

Right-To-Know: Illinois, Massachusetts, New Jersey, Pennsylvania



MATERIAL SAFETY DATA SHEET

Hydrogen Sulfide

CANADA

Workplace Hazardous Materials Information System (WHMIS)

WHMIS Classification(s): Class A – Compressed gas
Class B1- Flammable gas
Class D1A - Very Toxic
Class D2B – Other effects-Toxic

WHMIS Health Effects Index: Acute Lethality - very toxic – immediate
Eye irritation - toxic - other
TDG Class 2.3 - very toxic - immediate

WHMIS Ingredient Disclosure List: Confirmed A; Meets criteria for disclosure at 1% or greater.

CEPA / Canadian Domestic Substances List (DSL): The substances in this product are on the Canadian Domestic Substances List (CEPA DSL).

EINECS Number : 231-977-3

16. OTHER INFORMATION

REFERENCES:

1. "CHEMINFO" through "CCINFOdisc", Canadian Centre for Occupational Health and Safety, Hamilton, Ontario, Canada, May 2001.
2. CHEMLIST, American Chemical Society, 2001.
3. CESARS: Chemical Evaluation Search And Retrieval, Canadian Centre for Occupational Health and Safety, Issue : 2001-2, May, 2001.
4. Handbook of Compressed Gases, 3rd Edition, Compressed Gas Association, Arlington, Virginia, 1990.
5. HSDB-Hazardous Substances Data Bank , through "CCINFO disc", Canadian Centre for Occupational Health and Safety, Hamilton, Ontario, Canada, (May 2001).
6. RTECS- Registry of Toxic Effects of Chemical Substances, On-line search, Canadian Centre for Occupational Health and Safety RTECS database, May, 2001.
7. Transportation of Dangerous Goods Act and Regulations, Canadian Centre for Occupational Health and Safety, May 2001.
8. Threshold Limit Values for Chemical Substances and Physical Agents, Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, 2001.

Hydrogen Sulfide**16. OTHER INFORMATION (Continued)**

Legend:

CAS #	- Chemical Abstracts Service Registry Number
CERCLA	- Comprehensive Environmental Response, Compensation, and Liability Act
CFR	- Code of Federal Regulations
DOT	- Department of Transportation
EPA	- Environmental Protection Agency
ERAP	- Emergency Response Assistance Planning
LC ₅₀	- The concentration of material in air expected to kill 50% of a group of test animals
LD ₅₀	- Lethal Dose expected to kill 50% of a group of test animals
LEL	- Lower Explosive Limit
MSHA	- Mine Safety and Health Administration
NIOSH	- National Institute for Occupational Safety and Health
PEL	- Permissible Exposure Limit
PVC	- Polyvinyl chloride
RCRA	- Resource Conservation and Recovery Act
SARA	- Superfund Amendments and Reauthorization Act of the U.S. EPA
STEL	- Short Term Exposure Limit
TDG	- Transportation of Dangerous Goods Act/Regulations
TLm	- Median Threshold Level
TLV	- Threshold Limit Value
TSCA	- Toxic Substances Control Act
TWA	- Time-Weighted Average
UEL	- Upper Explosive Limit

Prepared by PIONEER (905) 403-4745

The information contained herein has been approved by MARSULEX Inc. and is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and MARSULEX Inc. will not be liable for any damages, losses, injuries or consequential damages that may result from the use or reliance of any information contained herein.

APPENDIX G
EMPLOYEE SIGNOFF SHEET

I have read the Tom Brown, Inc. Sulfur Enrichment & Injection Facility **Emergency Response Plan/Public Protection Plan** and understand its contents. I understand my personal responsibilities under this policy and will make use of this information to contribute to safety of the public and for my own personal safety while an employee of Tom Brown, Inc.

Date _____

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

From: Gil Hunt
To: Chris Kierst
Date: 8/9/2004 10:54:12 AM
Subject: Re: Fwd: Lisbon B-814 acid gas well

Go with the first one since they're willing to do it. It's true the rule is not specific on PE requirements but it doesn't exclude it either. If it seems justified, as in this case with safety considerations, we can ask for it.

>>> Chris Kierst 08/06/2004 8:26:04 AM >>>

I like something along the lines of the first example given, although I would prefer a UT PE. I'm not sure if this is the type of circumstance that a legitimate registered PE opinion is necessary or not. If not here then when? This is a relatively high profile well (project) dealing with an especially nasty toxic gas complicated by 4 other well bores in the AoR, some of which may have issues. For your reference, I have attached the current(incomplete) version of my SOB. The 4th page of the SOB contains my review of the mechanical condition of the five wells within the AoR. Marty Buys says the USIT log is in the mail. Do you have any preference on this? Should I accept an (officially) unsupervised review from Kim Sands?

>>> "Gimmeson, Brant (TBI)" <bgimmeson@tombrown.com> 8/5/2004 5:21:38 PM >>>

As per your request today that a registered Engineer, PE review the wells within a 1/2 mile radius of the proposed well and to assure that no conduit exists that could enable fluids to migrate up or down the wellbore and enter improper intervals.

The team lead for this area for Tom Brown is Ron Schuyler (WY PE) Ron will be moving from Canada next week and will be out of town. He plans to review the adjoining well information with Kim Sands (Petroleum Engineer) this Friday. Kim will finish the review and Ron will sign off on the items above if that is what is determined from the review conducted by himself and Kim.

So Ron would sign off on it as review by a person directly under his supervision. Would that be appropriate?

What do you require as a sign off:

Example.

As per rule R649.5-2.11 I hereby state that a person under my direct supervision has reviewed the well information and determined that the wells within a 1/2 mile radius of the proposed Lisbon B-814 (B-614, B-614A, D-715, A-814) have been reviewed for the mechanical condition to assure that no conduit exists that could enable fluids to migrate up or down the wellbore and enter improper intervals.
Signed by both individuals.

Or can we have Kim sign it without Ron and remove the under my direct supervision quote be removed?

It didn't appear to me in the rule that a PE was required.

From: Chris Kierst
To: Gimmeson, Brant (TBI)
Date: 8/11/2004 9:47:37 AM
Subject: Re: Lisbon B-814 acid gas well

The first example that you have suggested as a sign off will suffice as a model (review inclusive of the B-814 itself - ie. 5 bores inside the AoR, not just 4; March 2004 USIT log indicated possible B-814 issues). Our acceptance of this model presupposes the drafting of an attached short report containing statements specifically addressing the mechanical integrity of each individual well bore within the AoR. I believe the Rule citation is actually R649-5-2-2.11.

>>> "Gimmeson, Brant (TBI)" <bgimmeson@tombrown.com> 8/5/2004 5:21:38 PM >>>

As per your request today that a registered Engineer, PE review the wells within a 1/2 mile radius of the proposed well and to assure that no conduit exists that could enable fluids to migrate up or down the wellbore and enter improper intervals.

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Signed by both individuals.

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It didn't appear to me in the rule that a PE was required.

CC: Gil Hunt

TOM BROWN, INC.

August 20, 2004

Utah Division of Oil, Gas & Mining
1594 west North Temple
Salt Lake City, Utah 84114
Attention: Chris Kierst

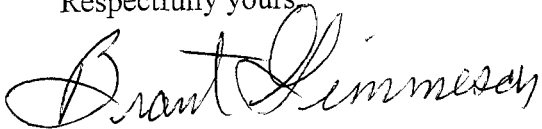
RE: Acid Gas Injection in the B-814

Dear Mr. Kierst:

As per your request the B-814 and the wells within a ½ mile radius have been reviewed by Tom Brown inc. Engineer. An original of that statement is enclosed.

If you should have any other questions please give me a call at 303-260-5030.

Respectfully yours




Brant Gimmeson
Environmental Manager

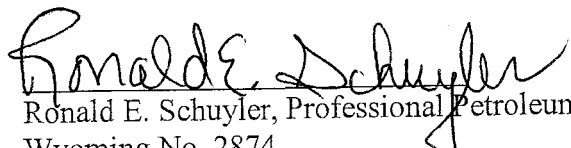
RECEIVED
AUG 23 2004
DIV. OF OIL, GAS & MINING

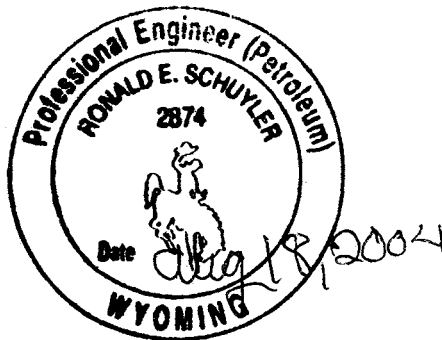
TOM BROWN, INC.

As per rule R649-5-2-2.11

I hereby state that Kim Sands (Petroleum Engineer) working under my supervision, has reviewed the mechanical condition of each well within a ½ mile radius of the proposed injection well, Lisbon B-814, to assure that no conduit exists that could enable fluids to migrate up or down the wellbore and enter improper intervals. This includes the wells B-614, B-641A, D-715, A-814 and the proposed injection well, B-814.


Kim Sands, Petroleum Engineer


Ronald E. Schuyler, Professional Petroleum Engineer
Wyoming No. 2874



From: Chris Kierst
Subject: Questions about some of the wells in the Lisbon B-814 acid gas disposal well Area of Review

I have listed some questions that I had while I was reviewing the information that we received in support of the B-814 acid gas well permit application.

1. The Tom Brown Daily Completion/Well Work Activity Report of 3/23/04 for the B-814 mentions possible internal pitting from 7700' to 7800' and a "questionable area" from 6475' to 6615' and that both areas were rerun in high resolution mode. We did not have a copy of this log and so Marty Buys sent me one on 8/9/04. What conclusion was reached regarding the condition of the casing at these levels?

2. The well records for the B-614 reveal that the well wouldn't hold 1000# for 30 minutes on 3 occasions during June of 2003. Is this still the case? *Tested backside above 700# and it held (above perf)*

3. The P&A'd D-715 well was whipstocked from 6122'. The casing in the whipstocked leg collapsed and was "repaired". It currently contains 2 1/2 tubing that was cut off with a chemical cutter at 5420'. The original leg is presumably open hole. *Are you comfortable that this well is not a conduit for the vertical migration of acid gas injectate?* *Well the plugs as placed in this well prevent*

4. The P&A'd A-814 well was reported to have a possible casing leak and to be in "poor condition" in September of 1985. *Are you comfortable that this well is not a conduit for the vertical migration of acid gas injectate?*

*Tight 5156
csg.*

6120 Retainer 5097 TOC

csg tested to 500 psi

Kim Sands

(303)

260 - 5068

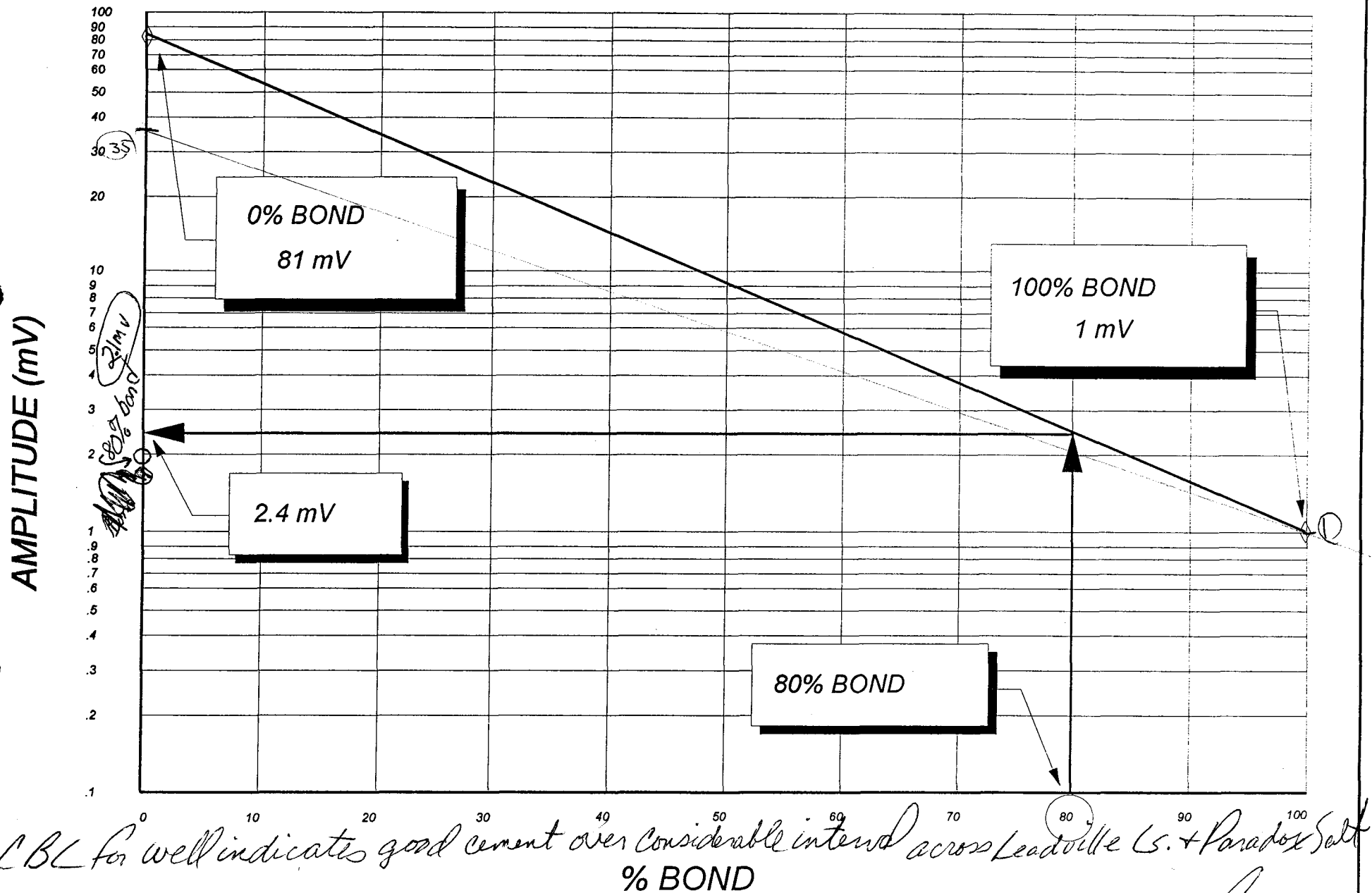
(303) 250', 714

Non will send results of an analysis of log of 8/27/04
OH 8585
Ann plug
8391 to 5097
Kickoff plug
6088 to 6250
2000' OH
Paradox Salt
4312 T/Para
8276 T/min

Talk Ron Schuyler

*3775 TOC
plug above
5330 +
cement above
to isolate
bad spot*

Tom Brown B-814 Bond Index



CBL for well indicates good cement over considerable interval across Leadville ls. + Paradox Salt

TT is reasonably stable and tracking @ ~270 μ s

2/22/04

Free pipe amplitude = ~38-40 mV

Casing = 5.5" and 17#/ft (Free pipe = 72 mV ???)

Schlumberger

To: Kim Sands
EnCana/TBI

August 27, 2004

From Jeff Davis
Schlumberger

Subject; Schlumberger UltraSonic Imager (USIT) Log Interpretation – Lisbon Unit B814

Kim;

As per our discussion of Aug 27, 2004 here are my comments on the high resolution repeat passes run on Lisbon Unit B814 on March 22, 2004. For clarity please see attached figures where I have made side by side overlays of the Main pass versus the Repeat Sections.

Main Pass and High Resolution Repeat Sections, Interval 6475' to 6615' – See Figure 1

- Collars occur at 6461', 6494', 6527', 6560', 6593' 6626' and 6658'.
- The dual black bands seen in track 3 of both the main pass and repeat pass are indicative of the tool being eccentered in the casing – When we checked the directional drilling plots a change in wellbore direction was noted at this depth so my interpretation of this event is the high dogleg severity has eccented the tool.
- The ability of the tool to determine thickness and internal radii is challenged by the eccentering but overall it appears that the casing is in good condition over this interval.
- Some minor internal pitting and corrosion is seen over interval 6640' to 6655'. Non repeatable pit is seen on the high resolution pass at 6640.5' on both thickness and internal radius.
- Spikes seen at 6639.5' and 6519' are suspect due to casing being eccentered at these points.
- Cement Bond Log shows excellent bond over this interval with cement top at 5170'.

Main Pass and High Resolution Repeat Sections, Interval 7700' to 7800' – See Figure 2

- Collars occur at 6461', 7711', 7744', 7777' and 7810'.
- Minor repeatable internal pitting occurs over interval 7724' to 7738', 7746' to 7770' and 7780' to 7800'
- The images show that the pitting seems to be oriented along one side of the casing.
- Cement Bond Log shows excellent bond over this interval with cement top at 5170'.

If you have any other questions regarding this or any other matter please feel free to call me at 720 956 3787.

Thank You,

Jeff Davis
EnCana TBI _ Schlumberger Cased Hole Wireline Coordinator.

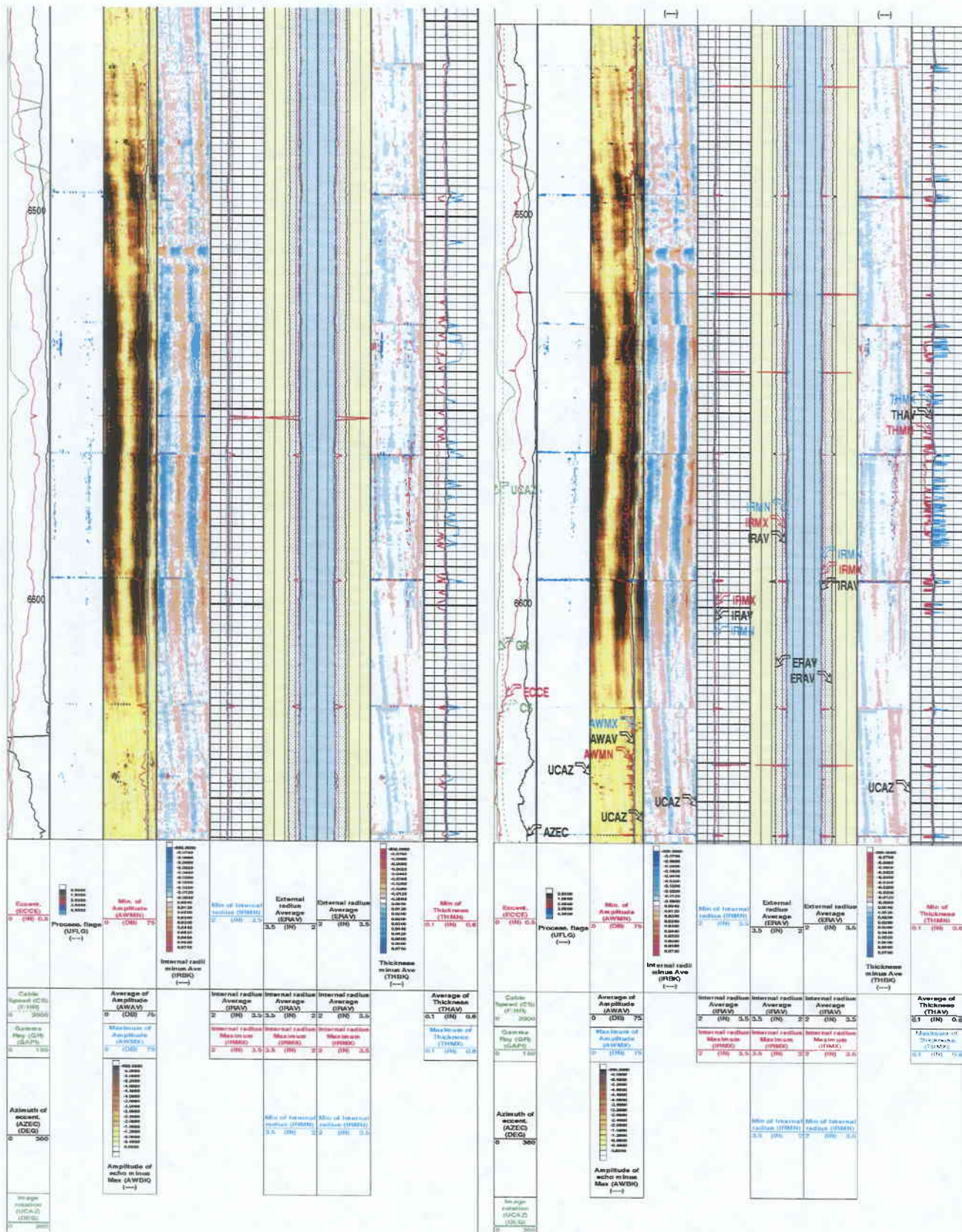


Figure 1: Main Pass and High Resolution Repeat Sections – 6475' to 6615' TBI Lisbon Unit B814 USIT Log 22 March 2004

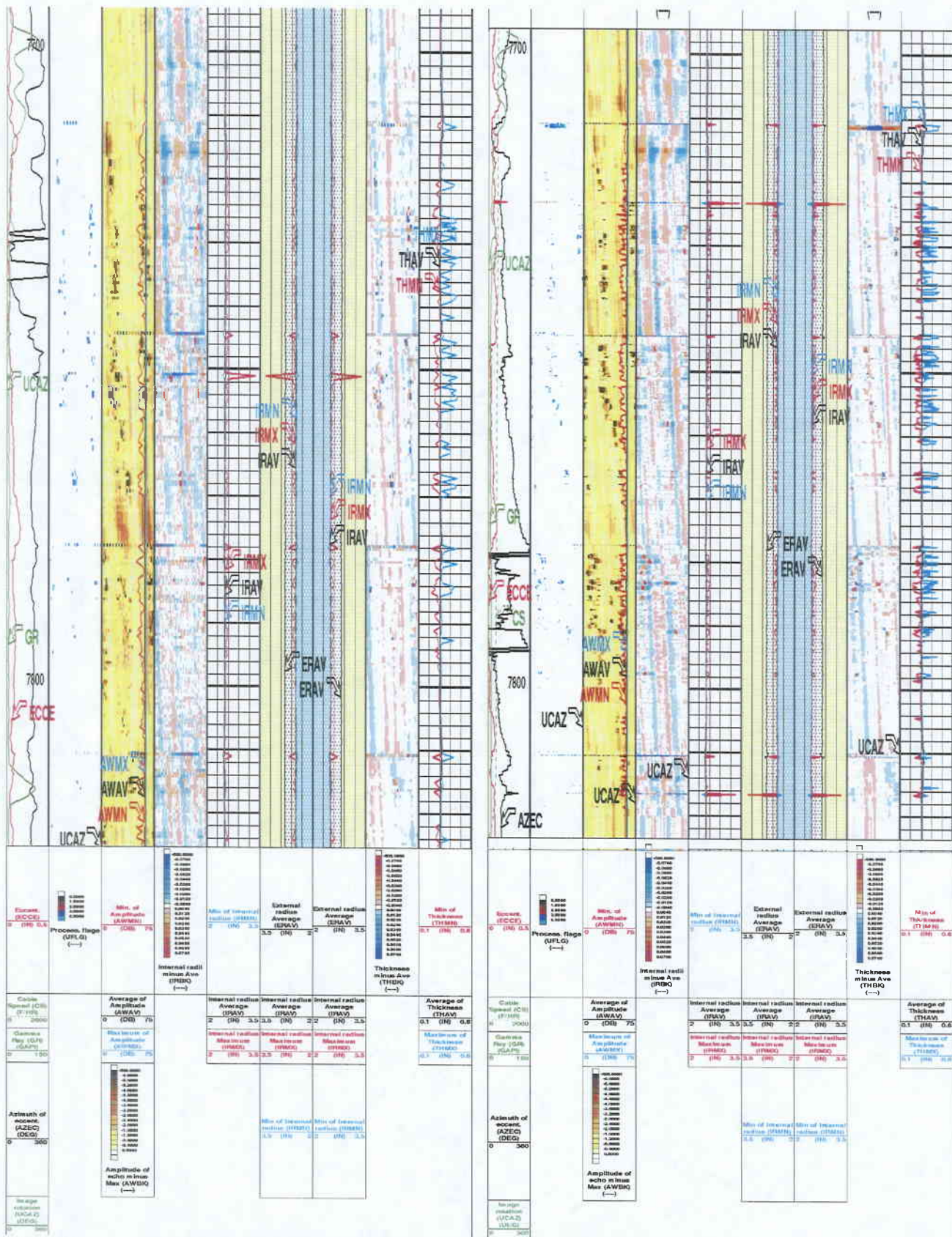


Figure 2: Main Pass and High Resolution Repeat Sections - 7700' to 7800'
TBI Lisbon Unit B814 USIT Log 22 March 2004

From: Chris Kierst
To: Allred, Kenny (TBI)
Date: 9/3/2004 1:38:37 PM
Subject: Re: B-814 emergency plan

So long as the telemetry works, the positioning of the monitors looks good considering how rugged the terrain appears.

>>> "Allred, Kenny (TBI)" <kallred@tombrown.com> 8/31/2004 4:25:01 PM >>>
Chris,

Attached please find several maps of the areas needed for H2S monitoring equipment. As you can see, the area is rugged and isolated. The telemetry for the monitors will not work in the bottoms of steep canyons. We would like to place the sensors in the locations where the canyons start to open up. We have placed the dispersion modeling for both scenarios on a single map. Please let me know your thoughts on the locations of the sensors.

Due to the size of the attachments, I will send the pictures separate.

Thanks

Kenny Allred

Safety Advisor

office 435-686-7604

cell 435-260-1669

fax 970-946-5780

From: "Allred, Kenny (TBI)" <kallred@tombrown.com>
To: <chriskierst@utah.gov>
Date: 8/31/2004 4:27:36 PM
Subject: B-814 emergency plan

Chris,

Attached please find several maps of the areas needed for H2S monitoring equipment. As you can see, the area is rugged and isolated. The telemetry for the monitors will not work in the bottoms of steep canyons. We would like to place the sensors in the locations where the canyons start to open up. We have placed the dispersion modeling for both scenarios on a single map. Please let me know your thoughts on the locations of the sensors.

Due to the size of the attachments, I will send the pictures separate.

Thanks

Kenny Allred

Safety Advisor

office 435-686-7604

cell 435-260-1669

fax 970-946-5780

CC: "Dion Plsek" <dionplsek@cordcomp.com>

From: "Allred, Kenny (TBI)" <kallred@tombrown.com>
To: <chriskierst@utah.gov>
Date: 8/31/2004 4:37:29 PM

Chris,

Attached please find the pictures to go with the earlier message.

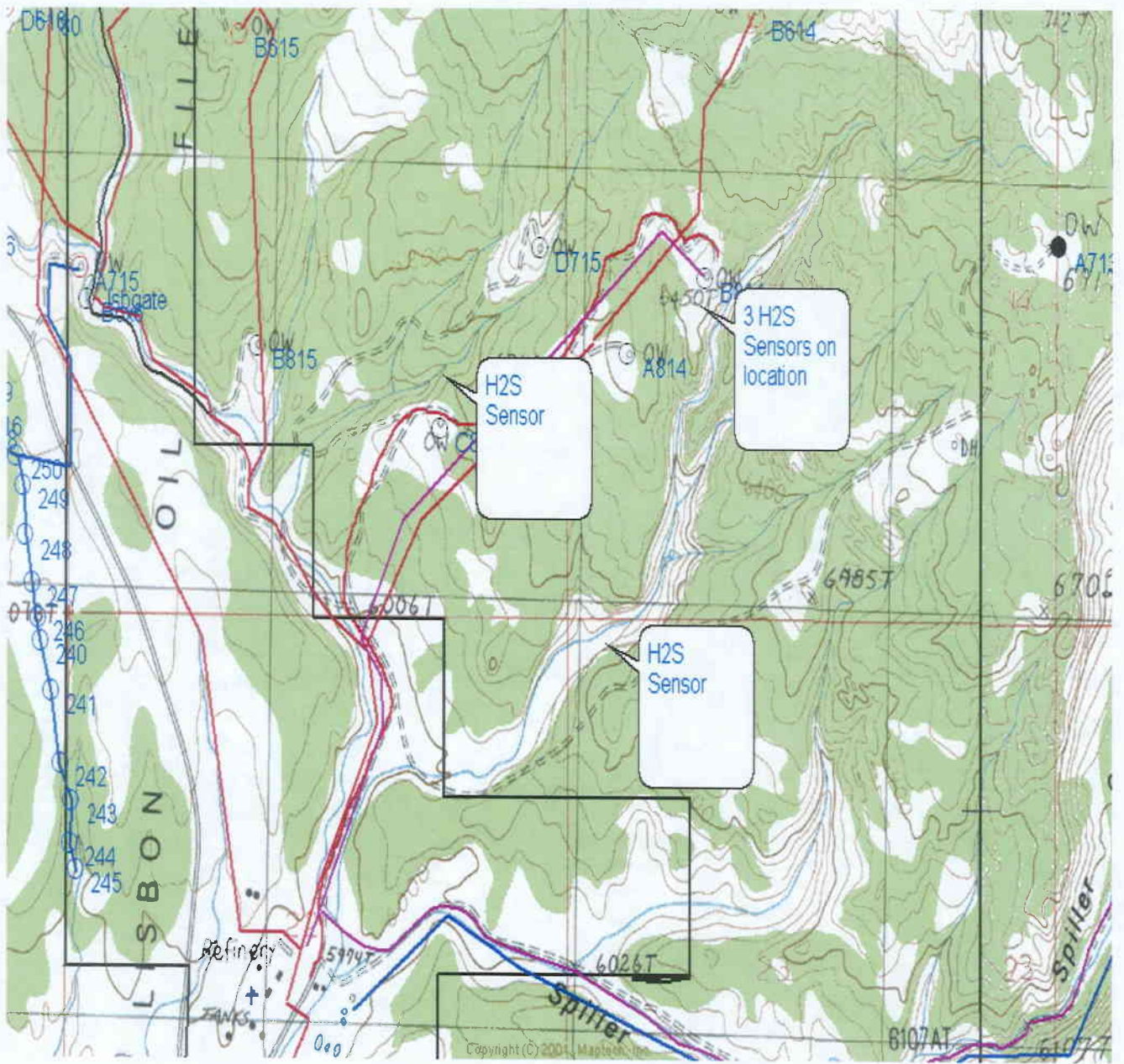
Thanks

Kenny Allred
Safety Advisor

office 435-686-7604

cell 435-260-1669

fax 970-946-5780



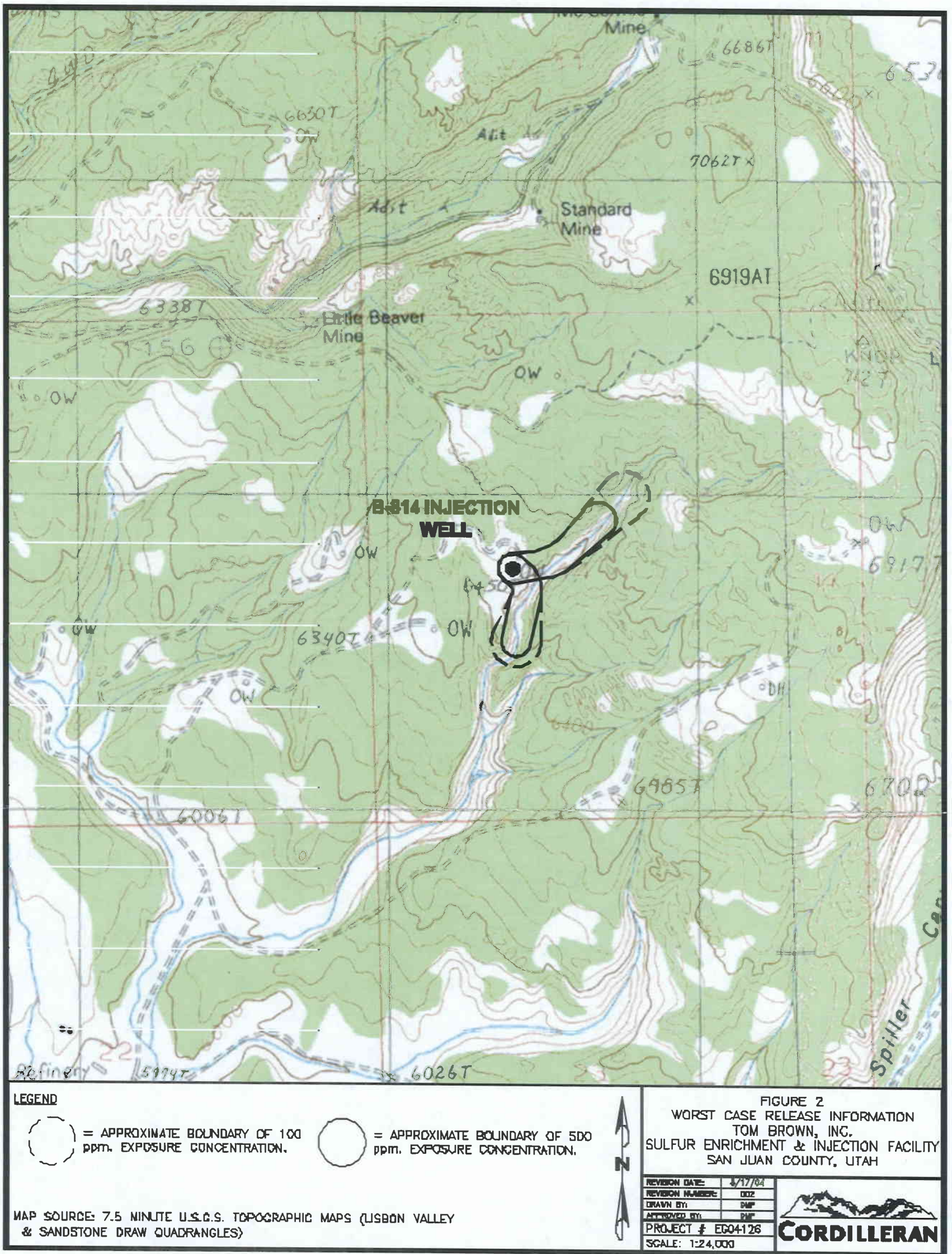
Modification of H₂S sensor placing
for Emergency Response Plan

CR 9/1/04









Version Amended for Still Wind
conditions in addition to prevailing
Southwesterly winds

ck 8/31/04



State of Utah

Department of
Natural Resources

ROBERT L. MORGAN
Executive Director

Division of
Oil, Gas & Mining

LOWELL P. BRAXTON
Division Director

OLENE S. WALKER
Governor

GAYLE F. McKEACHNIE
Lieutenant Governor

September 3, 2004

Mr. Brant Gimmeson
Tom Brown, Inc.
555 17th Suite 1850 West
Denver, Colorado 80202-3918

Re: Lisbon B-814 Waste Gas Disposal Well, Section 14, Township 30 South,
Range 24 East (SLBM), San Juan County, Utah

Dear Mr. Gimmeson:

Pursuant to Utah Admin. Code R649-5-3-3, the Division of Oil, Gas and Mining (the "Division") issues its administrative approval for conversion of the referenced well to a Class II waste gas disposal well for re-injection of sulfur gas. Accordingly, the following stipulations shall apply for full compliance with this approval:

1. Compliance with all applicable requirements for the operation, maintenance and reporting for Underground Injection Control ("UIC") Class II injection wells pursuant to Utah Admin. Code R649-1 et seq.
2. Conformance with all conditions and requirements of the complete application submitted by Tom Brown, Incorporated.
3. Conduct a successful Mechanical Integrity Test prior to inception of waste gas injection. A final UIC Permit will be issued when this stipulation has been fulfilled.

If you have any questions regarding this approval or the necessary requirements, please contact Christopher Kierst at (801) 538-5337 at this office.

Sincerely,

Don Staley
John R. Baza
Associate Director

for John Baza

jc

cc: Dan Jackson, Environmental Protection Agency
Eric Jones, BLM Moab Office
San Juan County Planning

Final Version

DIVISION OF OIL, GAS AND MINING
UNDERGROUND INJECTION CONTROL PROGRAM

**PERMIT
STATEMENT OF BASIS**

Applicant: Tom Brown, Incorporated

Well: Lisbon B - 814

Location: T30S, R24E, S14, San Juan Co. Utah

API: 4303730082

Ownership Issues:

This well is located on federal lands administered by the Bureau of Land Management (BLM) within the Lisbon Federal Unit. There are no other landowners within a half mile buffer distance from the proposed injection well. Tom Brown, Incorporated, retains a lease on the hydrocarbon mineral estate on Section 14. A state mineral tract exists (se sw S. 14) within the half mile Area of Review (AoR). A sworn Affidavit of Mailing (of the application and associated documentation to the particular owners, operators and surface owners) has been placed in the well file.

Well Integrity:

Description of the Casings and Cement:

CASING PROGRAM

<u>String Type</u>	<u>Hole Size</u>	<u>Depth</u>	<u>Feet</u>	<u>Casing Diameter</u>	<u>Weight</u>	<u>Grade</u>	<u>Connection Type</u>
Conductor	-	-	-	-	-	-	-
Surface	-	1003'	-	9 ^{5/8} "	43.5#	N-80	-
Production	-	9450'	-	5 1/2"	17#	J-55	-

CEMENT PROGRAM

<u>String Type</u>	<u>DV Depth</u>	<u>Stage Lead/Tail</u>	<u>Cement Bottom</u>	<u>Cement Top</u>	<u>Number Sacks</u>	<u>Cement Type</u>	<u>Cement Yield</u>	<u>Cement Weight</u>
Conductor	-	-	-	-	-	-	-	-
Surface	-	-	-	Surface	450 150	50/50 POZ "C"	-	-
Production	-	-	?	5174'	900 150	Halcolite "C"	-	-

Ground Water Protection:

Tom Brown, Inc. proposes to inject a 50% H₂S, 50% CO₂ produced "acid gas" mixture into the gases' strata of origin, the Mississippian Leadville Limestone,

through an overall perforated interval from 8,476 feet to 8,650 feet' Total Depth (TD), which is an unplugged interval used in previous production operations. No good quality ground water resource is likely be encountered in that Formation near the injection well location and at that depth.

The operator asks to be permitted to inject the "acid gas" waste stream into the Formation in the Lisbon B-814 at a Maximum Allowable Surface Injection Pressure of 1,500 psig. The permitted maximum injection pressure in the B-624 is 1,960 psig, a pressure that was supported by step rate test results. They hope to inject at an average rate of 1.5 MMCFD. The injectate gas mixture will be injected "dry", that is, with all the free water removed, and at sufficiently high temperature and pressure that no water is permitted to condense. This will be done to preclude the possibility of water and H₂S combining to create a sulfide stress cracking (SSC) corrosion problem for the 1970s' era J-55 Grade production casing and the 2^{7/8}" J-55 Grade tubing and the packer. The operator has conducted phase behavior studies in order to inject the proposed gas mixture with no free water. They propose to conduct their operations to properly process the waste gas stream and maintain the necessary temperatures and pressures needed to ensure that injection will occur safely within the requisite phase envelope.

The base of moderately saline waters (encountered at about the 5,500 feet elevation) occurs over 7,500 feet higher, at about 1,000 feet of depth in the B-814 injection well. The primary confining layer above the injection zone will be more than 4,000 feet of Pennsylvanian-age Paradox Salt. The operator estimates that the proposal will eventuate the injection of a converted volume of 1.25 MMB, which is about 6% of the reservoir pore volume. A 10-year breakeven term is forecast for this phase of the operator's project, but the overall injection project life is likely to be somewhat longer. The mixture is not expected to reach any offset well bores during the remaining economic life of the field. The mixture is expected to be highly soluble in the Leadville Limestone connate water and may slightly increase the reservoir permeability, commensurately lowering injection pressure.

Analysis of the typical composite of field-produced water injectate revealed a Total Dissolved Solids (TDS) value of 76,671 mg/l. Another individual sample from the Leadville Limestone reservoir tested in excess of 110,000 mg/l TDS. The permit for this well will be issued based on a design that is intended exclusively for the injection of an acid gas stream. It will be necessary to inject the stripped produced water into another salt-water disposal well. In this area, the Leadville Limestone is not considered an Underground Source of Drinking Water (USDW; a water source containing less than 10,000 mg/l, total dissolved solids).

There are no subsurface water rights filed within a mile of the B-814 and the only other water rights filed are for surface water.

In order to support this permit application, the Operator references data generated

in support of the permit granted by the Division for "waste gas" (acid gas) disposal in the B-624 well. Among the items performed pursuant to the B-624 permit, the Operator effected:

- A down hole injection pressure survey to determine the surface injection pressures for injecting the waste gas mixture. A 30-minute bottom hole injection pressure (BHIP) of 3,958 psi was determined with an average fluid gradient of 0.46 psi/ft between the 8,000 feet and 9,000 feet pressure measurements.
- A pressure falloff test. Analysis of the results indicated that both pseudo linear and pseudo radial flow regimes were encountered, that the reservoir pressure was extrapolated to 2,358 psi and that there was a permeability of 0.3 md over 52 feet of net injection zone.
- A step rate test was run and from this the fracture initiation pressure was estimated to be 5,300 psi at 5.3 BPM, which corresponds to 7,632 BWIPD. The calculated fracture gradient was 0.59 psi/ft. In addition, subsequent nodal analysis revealed that the wellbore and reservoir could conservatively accommodate the injection of 1,700 MCF/D of waste gas.

The Division agrees that, within limits, the information obtained from the cited activities on the B-624 can be used to characterize reservoir conditions in the B-814 for the support of its permit application and warrants that R649-5-2-2.9 [the Rule requirement of evidence that the operation of waste gas injection at the proposed pressure (1,500 psig) will not initiate fractures in confining strata] is waived because the proposed injection pressure is nearly 25% below that approved for the B-624 waste gas injection well (1,960 psig). The B-624 is approximately 1¼ miles southeast, approximately 600 feet structurally lower on the Leadville Limestone and approximately 160 feet lower in surface elevation. This equates to a difference of about 200 psi in hydrostatic pressure.

Analysis of a lately run Cement Bond Log for the B-814 well reveals that the interval of the confining layer is characterized as having the casing well bonded to the cement over a considerable interval of the Pennsylvanian and Mississippian strata. The top of the cement is at 5,174 feet. The observed degree of bonding is considered acceptable for purposes of disposal well permitting.

Oil/Gas & Other Mineral Resources Protection:

The Lisbon Field Leadville Limestone productive zone has effectively been "watered out" in the injection well by the anticlinal field's active water drive. No other known potentially producible zones are recognized in this well.

A review of the well records of the Division of Oil, Gas and Mining revealed that there were five wells within the one-half mile regulatory AoR originating from the surface location of the subject well. These are listed in review below:

- Lisbon B-814 (4303730082) – The subject well for which a waste “acid” gas UIC Class II permit is sought, the Operator lists this 1972 well as a shut-in oil well. It appears to be in acceptable condition as reflected in the Division well records, however, it is noted that the Operator effected two high resolution passes of a Schlumberger UltraSonic Imager Tool (USIT) to be made over parts of the production casing when the prior normal resolution pass indicated some possible casing problems. The USIT was not tendered in the application documentary submission so I requested that a copy be sent. Cement was not circulated to surface, the top of cement (TOC) occurring at 5,174 feet Total Depth by CBL (CBL logging terminated shortly above the TOC). Schlumberger conducted a review of the questionable sections of the subject USIT log and their report dated 8/27/04 opines that the concerns are trivial and the casing and cement are sound.
- Lisbon B-614 (4303716468) – The Operator lists this 1960 drilled well as a producing gas well. A review of its records revealed that in June of 2003 the well failed to hold 1000 pounds of pressure for 30 minutes on three consecutive attempts during workover operations to restore production and shut off bottom water. No Cement Bond Log (CBL) is available; a Cement Evaluation Tool (CET) log is available. According to the Operator’s engineering staff the backside of the casing, above the perforations, was subsequently tested at 700 psi and held.
- Lisbon B-614A (4303731351) – This 1988 well appears to be in acceptable condition and is currently carried as a shut-in oil well. A Gearhart CBL with adequate indicated bonding is on file, although no transit time curve is presented on the log as a quality control indicator.
- Lisbon D-715 (4303716252) – This P&A’d 1965 well was whipstocked when the original (open) hole was junked. The whipstocked leg experienced a collapsed 5½-inch production casing. It was described as repaired. The whipstock leg was subsequently plugged and abandoned. It currently contains 2½ inch tubing that was chemically cut at 5,420 feet. The vintage McCullough CBL provided to the Division lacks a Variable Density Log (VDL) wavetrain curve and the transit time curve seems uncharacteristically high for its casing size and frequently varies 50 microseconds in many places along the length of the log. According to the Operator’s engineering staff the top of cement in this well is at 3,775 feet and a plug was set at 5,330 feet to isolate the bad sections. In addition, they indicate that the open hole section of the originally drilled leg is in Paradox Salt except for the bottom portion in the Mississippian. The lower portion was plugged and a kickoff plug was placed at the top of the open hole section, all of which should serve to isolate the original leg.

- Lisbon A-814 (4303716238) – The file for this P&A'd 1962 well contains documentation from September of 1985 that indicates a likely casing leak and poor casing condition, including tight spots. The vintage CBL filed with the division has no VDL or transit time quality control curve. The Operator's engineering staff places the top of cement at 5,097 feet and a retainer at 6,120 feet. They relate that the casing was subsequently tested to 500 psi and held.

This review of the well bores within the Area of Review concludes that there are none that are likely to pose a conduit for the vertical migration of the waste gas injectate.

Uranium mining has historically occurred in the Lisbon Valley area, as recently as during the late 1970's or early 1980's. The lateral extent of the subsurface workings of these mines is not available to the Division's Geographic Information System and it is not known with certainty if that information has been archived anywhere. For this reason, no attempt has been made to determine the proximity of the nearest subsurface workings in the mines either laterally or in terms of elevation above the injection zone. From personal experience, I know that the nearby mines were working in the Chinle Formation and possibly the uppermost Cutler Formation, both of which are above the confining Paradox Salt section. There are several inactive uranium mine portals outside the AoR but within a mile of the well.

Bonding:

Tom Brown, Incorporated, has an statewide \$80,000 surety bond filed with the State School and Institutional Trust Lands Administration (SITLA), which provides coverage for plugging this well. In addition, they have a \$150,000 nationwide bond filed with the BLM. The state-bonding situation is expected to change on 9/1/2004 to a plugging bond estimated to be \$120,000 filed with this Division (DOGM) and a reduction in SITLA binding to a \$15,000 performance bond.

Safety Considerations:

The operator has taken several positive measures to ensure the safe operation of the proposed facility. In addition, safety benefits are optimized within the design parameters of the operation. Safety considerations include:

- Well location is 1.25 miles remote from the gas plant.
- Well location is isolated and contained in a narrow unnamed side canyon.
- There is little quality ground water in the area.
- The proposed waste gas disposal well has acceptable cement and the casing appears be mechanically sound.
- The Leadville Limestone takes injected fluid on a vacuum.

- The injection zone is confined above by several thousand feet of Paradox Salt.
- The waste gases will be returned to their formation of origin.
- Emplacement of a wellhead meeting the NACE MR0175 standard for corrosion.
- Utilization of a nonconductive diesel oil packer fluid for corrosion.
- Automatic monitoring of injection parameters with out-of-bounds alarms and automatic shutoffs.
- The operator has proposed an acceptable hydrogen sulfide contingency and safety plan.
- The operator will conduct an initial MIT prior to beginning injection. If it is acceptable they will inject for a year and then conduct a second MIT. If it is also acceptable then they will default to a normal five-year MIT schedule.

Actions Taken and Further Approvals Needed:

Notice of this application was published in the Salt Lake Tribune and San Juan Record. In addition, copies of the notice was provided to the EPA Region 8, the BLM Moab Field Office and Tom Brown, Incorporated. The notice stated the proposed interval for injection to be selective zones in the Leadville Limestone (Mississippian). Any future injection into a formation other than that permitted will require administrative approval after appropriate sampling and testing.

After reviewing their documentary submission and application, it is my conclusion that Tom Brown, Incorporated, ought to be granted a permit to utilize the B-814 well for injecting the proposed hydrogen sulfide and carbon dioxide waste gas mixture into the proposed zone. The proposed operations would not result in any meaningful diminution in the quality of the noxious formation water. A pressure increase should be experienced near the wellbore, which would dissipate after injection ceases. No negative impacts on any high quality ground water resource are anticipated resultant of the subject permitted operations.

A properly designed and constructed injection well, combined with periodic mechanical integrity tests, demonstrably poses no threat to fresh or useable groundwater supplies. The Division staff recommends administrative approval of this application.

Note: Applicable technical publications concerning water resources in the general vicinity of this project have been reviewed and taken into consideration during the permit review process.

Reviewer(s): Christopher J. Kierst Date: 8/31/2004

From: "Sands, Kim (TBI)" <ksands@tombrown.com>
To: <chriskierst@utah.gov>
Date: 10/15/2004 11:23:07 AM
Subject: Tom Brown Inc, Lisbon B 814 AGI Well

Mr. Kierst -

I have attached the procedure for the MIT on the Lisbon B 814 proposed acid gas injection well for your review. We plan to perform this MIT towards the end of next week.

Please let me know if you have any questions or comments, or if we need to make any changes.

Thanks
Kim
<<Lisbon B 814 AGI MIT.doc>>

Kim Sands
Production Engineer - Paradox Basin
Encana
303-260-5068 office
720-946-5468 fax

CC: "Gimmeson, Brant (TBI)" <bgimmeson@tombrown.com>

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Thanks

Kim

<<Lisbon B 814 AGI MIT.doc>>

Kim Sands

Production Engineer – Paradox Basin

Encana

303-260-5068 office

720-946-5468 fax

Tom Brown, Inc.
Well Recompletion Procedure
October 8, 2004
Revision 0

Lisbon B 814 AGI
2601' FSL & 1482' FWL, Sec. 14-T30S-R24E
Mechanical Integrity Test
San Juan County, Utah

Prepared by: Kim Sands
Office: 303-260-5068
Cell: 303-250-1714
Fax: 720-946-5468
Home: 303-282-0238
E-mail: ksands@tombrown.com

AFE Number: 42386
AFE Cost: \$596,905
API Number: 43-037-300082
Property #:

TBI Working Interest: 95.83451%
TBI Net Revenue Interest: 80.98963%

Spud Date: 7/8/1972
TD Date: 8/29/1972
Completion Date: 10/13/1972
Current Status: SI

Objective: Perform mechanical integrity test on production casing to satisfy permit requirements for the acid gas injection conversion.

Completion Rig: Key 24

Lisbon B 814 AGI
2601' FSL & 1482' FWL, Sec. 14-T30S-R24E
Mechanical Integrity Test
San Juan County, Utah

Well Information

TD:	8964'
PBTD:	8658'
GL elevation:	6468'
KB elevation:	6482'
Surface Casing:	9-5/8", 43.5#, N-80, LTC set @ 1003' Cmt'd w/ 450 sx 50/50 f/b 150 sx "C" to surface (12-1/4" hole)
Production Casing:	5-1/2", 17#, K-55 STC casing, set @ 8964' Cmt'd w/ 90 cubic ft salt saturated halcolite, 10% gel cement with 1# gilsonite per sx and 150 cubic ft Class C latex cement 10% salt.
Production Tubing:	2-7/8", 6.5#, EUE 8rd N-80 (203 jts)
Production Csg Collapse:	4910 psi
Production Csg Burst:	5320 psi
Max. Surface Treating Press.	
Down Csg (80% New):	4250 psi
Top of Cement:	5170' (estimated from Schlumberger CBL run on 3/22/04)
Formation Tops:	Ouray @ 8916', Mississippian @ 8470', Base Sale @ 8350', Paradox Salt @ 4386', Ismay @ 4040', Honaker Trail 3162'.
Target Zones:	Mississippian
Existing Perforations:	8476' – 8479', 8538' – 8546', 8568' – 8640, 8640' – 8650' (4 spf)
Squeezed Perfs:	8843' – 8848', 8854' – 8858', 8862' – 8875' (2 spf); 8789' – 8793', 8802' – 8808' (2 spf) 8772' – 8781' (2 spf) 8662' – 8670' (4 spf)
Plugs:	Cement retainers @ 8829', 8783', 8721', 8658'
Expected Reservoir Pressure:	4550 psi (0.33psi/ft)
EH&S Issues:	Existence of a high volume, sour gas on the Lisbon B 814 location.

Lisbon B 814 AGI
2601' FSL & 1482' FWL, Sec. 14-T30S-R24E
Mechanical Integrity Test
San Juan County, Utah

NOTE: In the event of an EH&S incident, notify Kim Sands & Kenny Allred ASAP.

*****NOTE:** *Notify Mr. Christopher Keirst, State of Utah, Department of Natural Resources @ 801-538-5337 three (3) days prior to performing MIT.*

5-1/2" Production Casing Mechanical Integrity Test:

1. Notify BLM at least 24 hours prior to commencing operations. Set anchors. Set frac tanks for freshwater.
2. MIRU. Hold rig inspections and pre-job safety meeting.
3. Blow well down. ND WH and NU BOPE. Test BOP
NOTE: Well is currently shut-in.
4. POOH with 2.25" F nipple and 203 jts 2-7/8" tubing.
5. PU and TIH w/ 4-3/4" rock bit, 5-1/2" csg scraper, X-O, and 2-7/8" tubing to top perf @ 8476'.
6. RIH and set 5-1/2" RBP @ +/- 8400'. Fill and circulate hole clean with freshwater. Test casing to 1500 psi for 30 minutes. Chart record pressure test.
7. Release RBP @ +/- 8400'. POOH
8. RIH with 2-7/8" tubing and 2.25" F Nipple.
9. Land tubing, ND BOP, NU WH.
9. RDMO.

Lisbon B 814 AGI
2601' FSL & 1482' FWL, Sec. 14-T30S-R24E
Mechanical Integrity Test
San Juan County, Utah

Tom Brown, Inc. Contacts:

Name	Title, Location	Telephone Number
Kim Sands	Production Engineer, Denver	303-260-5068 office 303-250-1714 cell 303-282-0238 home 720-946-5468 fax
Ron Schuyler	Operation Manager, Denver	303-260-5142 office
Kenny Allred	HSE, Lisbon	435-686-2236 office
Bob Brooks	Reservoir Engineer, Denver	303-260-5197 office
Rusty Calhoun	Production, Andy's Mesa	970-260-4268 cell
Rick Costanza	Production Supervisor, Lisbon	435-686-7612 office 435-260-1671 cell
Rob Fairchild	Completion Supervisor, Paradox	970-260-9469 cell
Bill Houston	Geologist, Denver	303-260-5242 office
Larry Lillo	Landman, Denver	303-260-5127 office
Brent Miller	Geophysicist, Denver	303-260-5050 office
Rex Thompson	Completion Supervisor, Paradox	970-560-5001 cell
Doug Vansteelandt	Team Lead, Denver	303-389-5068 office
Jane Washburn	Engineering Tech, Denver	303-260-5031 office
Scott Webb	Regulatory, Denver	303-260-5194 office
Stan White	Geologist, Denver	720-956-3534 office 720-273-2342 cell
Chris Williams	HSE, Denver	303-389-5085 office 303-888-6978 cell

Service Company Contacts:

Service	Name	Company, Location	Telephone Number
Retainers	Karl Caldwell	Halliburton, Denver	303-899-4700 office
Pressure Bombs / Slickline	Jeff Williams	Phoenix Services, Farmington	505-325-1125 office 505-793-1101 cell
Snubbing	Steve Shafer Chris Prather	Cudd, Denver Cudd, Rock Springs	303-571-1734 office 307-382-6650 office
Wellhead	Dave Anderson	Cameron, Denver	303-861-1850 office
Wireline		Spicer	970-241-5088 office

MIT		EMIT		MIT Tests	
API Well No:	43-037-30082-00-00	LISBON B-814		Multiple Tests for This Well >>>	10/23/2004 00:00
ENCANA OIL & GAS (USA) INC		SAN JUAN			
IMIT Test Date/Time:	10/23/2004 0:00	Reason For Test:	Initial Test		
Data for Wells Using APM		Type of IMIT		Date to edit/view data for this well:	
Ann. Mon. Result :		Std. Annulus Pres. Test			
Initial Test Pressure:		psig	Test Result:	Acceptable	Well Status:
Final Test Pressure:		psig	Witnessed?	No	Inj. Pressure:
Duration of Test:		min.			Inj. Rate:
					BPD
				Date Mod:	11/17/2004
Notes:	Casing test conducted during conversion				
				NEXT MIT:	10/23/2009

Obsolete



State of Utah

Department of Natural Resources

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas & Mining

MARY ANN WRIGHT
Acting Division Director

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

UNDERGROUND INJECTION CONTROL PERMIT

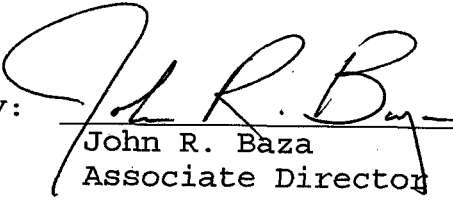
Cause No. UIC-314.1

Operator: Tom Brown, Incorporated
Wells: Lisbon B-814
Location: Section 14, Township 30 South, Range 24 East
(SLBM), San Juan County, Utah
API No.: 43-037-30082
Well Type: Waste Gas Disposal Well

Stipulations of Permit Approval

1. Approval for conversion to Injection Well issued on September 3, 2004.
2. Maximum Allowable Surface Injection Pressure: 1,500 psi.
3. Injection Interval: Perforations from 8,476' to 8,650' in the Leadville Limestone.

Approved by:


John R. Baza
Associate Director

4/6/05
Date

jc

cc: Dan Jackson Environmental Protection Agency
Eric Jones, Bureau of Land Management, Moab
San Juan County Planning

UNDERGROUND INJECTION CONTROL PERMIT

Cause No. UIC-314.1

Operator: Tom Brown, Incorporated
Wells: Lisbon B-814
Location: Section 14, Township 30 South, Range 24 East,
(SLBM), San Juan County, Utah
API No.: 43-037-30082
Well Type: Waste Gas Disposal Well

Stipulations of Permit Approval

1. Approval for conversion to Injection Well issued on September 3, 2004.

2. Maximum Allowable Surface Injection Pressure:
1,500 psi.

*Specific
zone?* ←

3. Injection Interval: ~~Selective zones~~ in the Leadville Limestone. *Perfs from 8476 to 8650* ↑

*Already
done?* ←

4. ~~Conduct a successful Mechanical Integrity Test prior to inception of waste gas injection operation and subsequently as per Rules.~~

Approved by: _____

John R. Baza
Associate Director

Date

jc

cc: Dan Jackson Environmental Protection Agency
Eric Jones, Bureau of Land Management, Moab
San Juan County Planning

FROM THE DESK OF

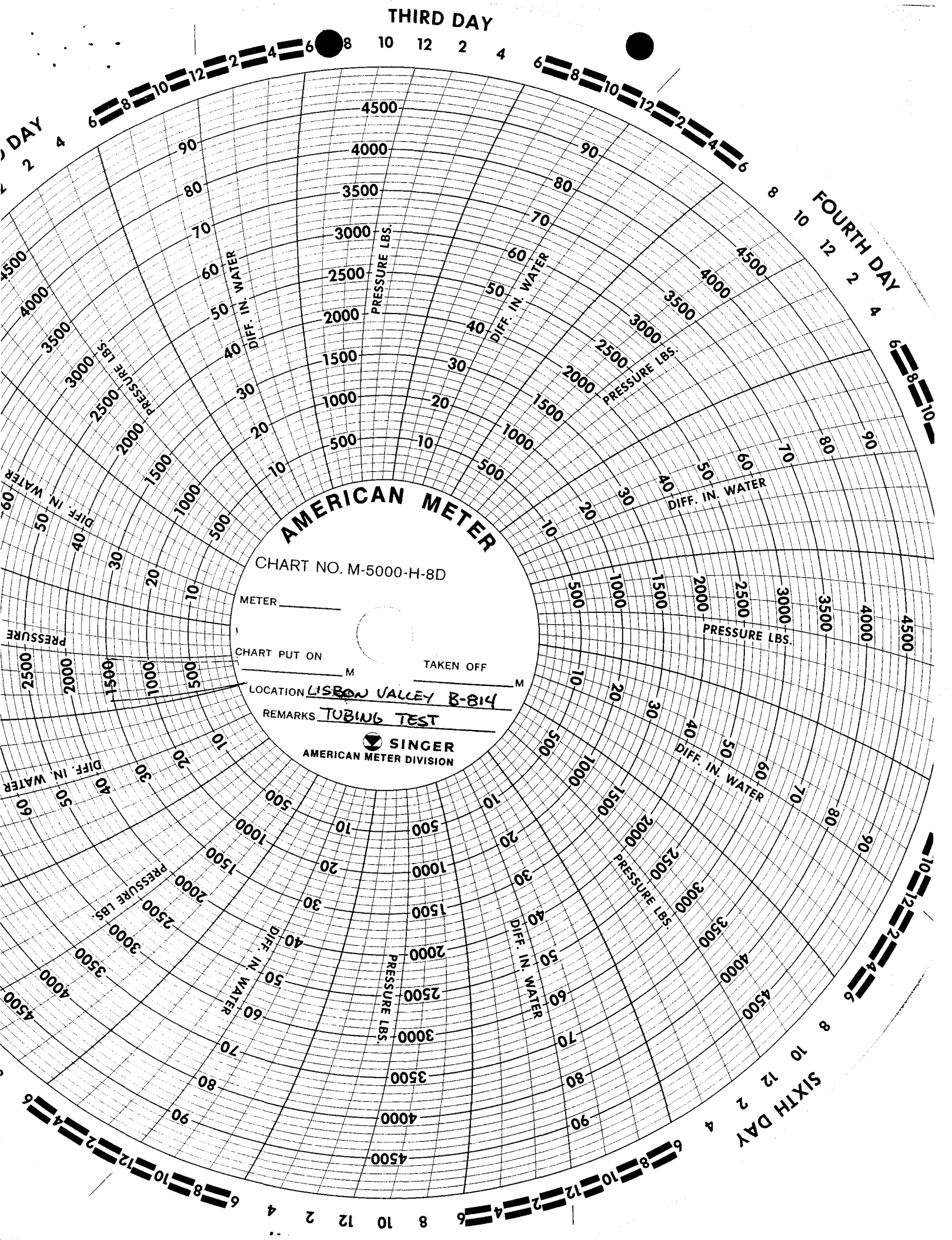
Hi Chris,

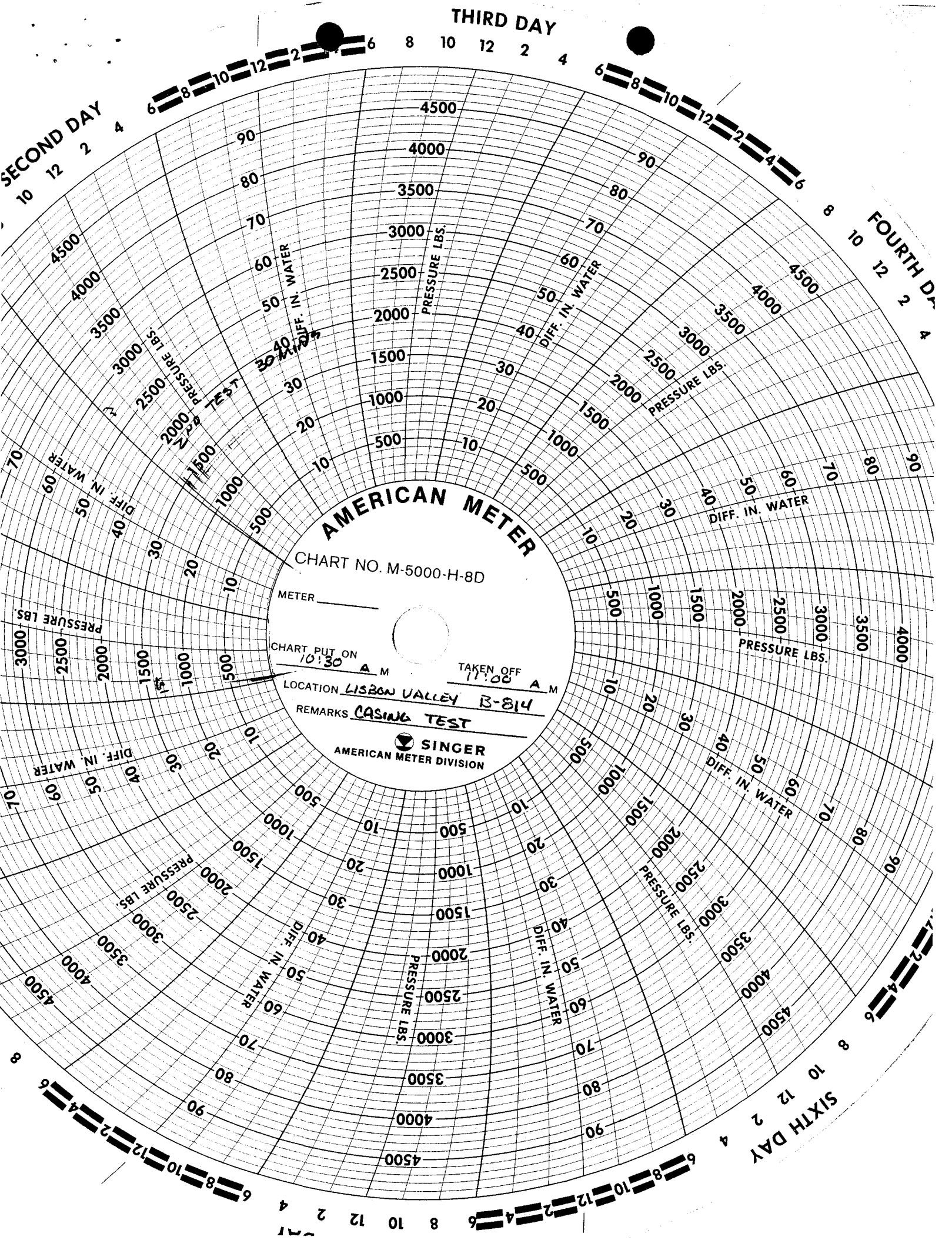
Here is the information
you requested. Please feel
free to contact me if
you need more.

Benny

RECEIVED
APR 08 2005
DIV. OF OIL, GAS & MINING

KENNY ALLRED





ENCANA™

Encana Oil & Gas (USA) Inc.

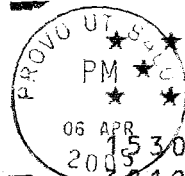
Lisbon Valley Plant

PO Box 760

Moab, UT USA 84532

Division of Oil, Gas and Mining
Attn: Chris Kierst
P.O. Box 145801
Salt Lake City, UT 84114-5801

84114+5801

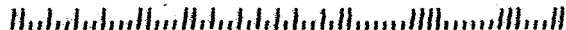


PITNEY BOWES

U.S. POSTAGE

USE ZIP CODE™
PB5536014

3010 \$ 00.370 APR 05 2005
1638 MAILED FROM ZIP CODE 84532



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill, or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE

1. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No.
2. Name of Operator: EnCana Oil & Gas (USA) Inc.		6. If Indian, Allotte or Tribe Name NA
Contact: Jane Washburn Phone: 720/876-5431		7. If Unit or CA/Agreement Designation Lisbon
3. Address and Telephone No. 370 Seventeenth Street, Suite 1700, Denver, CO 80202		8. Well Name and No. Lisbon B-814
4. Location of Well (Footage, T, R, M, or Survey Description) NENW Sec 14-T30S-R24E 2601' FSL, 1482' FWL		9. API Well No. 43-037-30082
		10. Field and Pool, or Exploratory Area Lisbon
		11. County or Parish, State San Juan, Utah

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (start/resume)	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Notice of injection
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with the BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, A form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

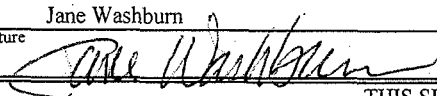
EnCana Oil & Gas (USA) Inc. begn injecting acid gas into the B-814 wellbore on 3/7/06.
Volumes will be reported on a monthly injection report.

RECEIVED

MAR 15 2006

DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct

Name (Printed/Typed) Jane Washburn	Title Operations Engineering Tech
Signature 	Date 03/09/2006

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by	Title	Date
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office	

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

From: Carol Daniels
To: Chris Kierst
Date: 03/29/2006 7:37:37 AM
Subject: LISBON B-814

The 1st injection date for the LISBON B-814 was 03/07/2006.

Cement Bond Log Gamma Ray Collars
Ultrasonic Imager Gamma Ray CCL
can be viewed by going to our web site
www.ogm.utah.gov

Go to the
Oil & Gas Program
Well Data Search
Enter the Oil and Gas Information System
Using the bar on the top of the screen
Click on
 Well Logs
 Search Well Logs
Click on Use Comma for Multiples and type
 4303730082
Click on Submit
Click on View or Download

April 12, 2004

UIC - 314.1

Mr. Chris Kierst
State of Utah
Division of Oil, Gas and Mining
1594 W. North Temple, Suite 1210
Salt Lake City, Utah 84114

RE: PERMIT APPLICATION - LISBON B-814 WELL
API # 43-037-30082
NENW Sec. 14 -T30S- R24E
San Juan County, Utah

Dear Mr Kierst:

Tom Brown Inc. is requesting permission to convert the Lisbon B-814 to a UIC well. This well is an existing shut-in well in the Mississippian Leadville formation in the Lisbon Field, San Juan County, Utah. TBI is the operator and major working interest owner of wells located in the Lisbon Field, San Juan County, Utah. The Lisbon Field is a unitized field that is managed by the Moab Field office of the BLM.

The Lisbon B-814 was spudded on 7/8/1972. During the initial production of the field, the wells produced both oil and gas and the gas was separated and re-injected. As the oil production declined, the Lisbon Gas Plant was built to process and sell the gas. The make-up of the gas has changed over time and the plant is currently being re-configured. The new process will concentrate the off gases into an "acid-gas" stream and this acid gas is what will be injected into the B-814. The acid gas stream is approximately 4% water, 50% H₂S and 46% CO₂.

RECEIVED

APR 16 2004

DIV. OF OIL, GAS & MINING

Mr. Chris Kriest

April 12, 2004

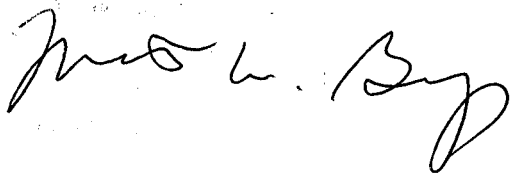
Page 2

TBI proposes to utilize the Mississippian Leadville formation (the existing SWD zone) as the disposal zone. This formation is also the producing formation. The gross injection interval in the Lisbon B-814 will be from 8476' to 8640'. *← UIC Form 1 says 8650'??*
8650'

Please contact me directly at 303.781.8211 if you have questions or require any additional information. Thank you for your help with this project.

Sincerely,

BUYS & ASSOCIATES, INC.



Martin W. Buys

Agent for Tom Brown Inc.

cc: BLM, Moab Field Office

**UNDERGROUND INJECTION CONTROL
PERMIT MODIFICATION**

**LISBON B-814
NENW Sec. 14 -T30S- R24E
San Juan County, Utah**

April 12, 2004

Prepared for:

*Mr. Chris Kierst
State of Utah
Division of Oil, Gas and Mining
1594 W. North Temple
Suite 1210
Salt Lake City, Utah 84114*

Prepared by:

BUYS & ASSOCIATES, INC.
300 E. Mineral, Suite 10
Littleton, Colorado 80112
(303) 781-8211
FAX (303) 781-1167

*- See Application Modification
Dated 6/15/04 and rec'd. on
6/17/04 by DORM. Did not
see it until 6/30/04 (return
from annual leave).
CK 7/1/04*

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

UIC FORM 1

APPLICATION FOR INJECTION WELL

Name of Operator Tom Brown Inc.			Utah Account Number N	Well Name and Number Lisbon B-814
Address of Operator 555 17th Street			Phone Number (303) 260-5030	API Number 4303730082
CITY Denver STATE CO ZIP 80202				
Location of Well Footage : 2601' FSL, 1482' FWL County : San Juan				Field or Unit Name Lisbon
QQ, Section, Township, Range: NENW 14 30S 24E State : UTAH				Lease Designation and Number 8910079759

Is this application for expansion of an existing project? Yes ☒ No ☐

Will the proposed well be used for:	Enhanced Recovery?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	Disposal?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Storage?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Is this application for a new well to be drilled? Yes ☐ No ☒

If this application is for an existing well, has a casing test been performed? Yes ☐ No ☒
Date of test: _____

Proposed injection interval: from 8,476 to 8,650

Proposed maximum injection: rate 1.3 Mmscf/D bpd pressure 1,200 psig

Proposed injection zone contains oil ☒, gas ☒, and / or fresh water ☐ within 1/2 mile of the well.

List of attachments: _____

**ATTACH ADDITIONAL INFORMATION AS REQUIRED BY CURRENT
UTAH OIL AND GAS CONSERVATION GENERAL RULES**

I hereby certify that this report is true and complete to the best of my knowledge.

Name (Please Print) Martin W. Buys

Title Agent for Tom Brown Inc.

Signature 

Date 4/6/2004

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill, or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

FORM APPROVED
OMB No. 1004-0135
Expires November 30, 2000

SUBMIT IN TRIPLICATE

1. Type of Well

☐ Oil Well

☐ Gas Well

☒ Other

UIC- Permit Modification

2. Name of Operator:

Tom Brown, Inc.

Contact

Phone 303.260.5030

3. Address and Telephone No.

555 Seventeenth Street, Suite 1850, Denver, CO 80202

4. Location of Well (Footage, T, R, M, or Survey Description)

2601 FSL, 1482 FWL

NENW, Sec 14, T30S, R24E

5. Lease Serial No.

8910079759

6. If Indian, Allote or Tribe Name

7. If Unit or CA/Agreement Designation

Lisbon Unit

8. Well Name and No.

Lisbon B-814

9. API Well No.

43-037-30082

10. Field and Pool, or Exploratory Area

Lisbon-Mississippian

11. County or Parish, State

San Juan County, UTAH

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

☒ Notice of Intent

☐ Subsequent Report

☐ Final Abandonment Notice

TYPE OF ACTION

☐ Acidize

☐ Deepen

☐ Production (start/resume)

☐ Water Shut-Off

☐ Alter Casing

☐ Reclamation

☐ Reclamation

☐ Well Integrity

☐ Casing Repair

☐ New Construction

☐ Recomplete

☒ Other

☐ Change Plans

☐ Plug and Abandon

☐ Temporarily Abandon

inject acid gas

☒ Convert to Injection

☐ Plug Back

☐ Water Disposal

13. Describe Proposed or completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with the BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, A form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

TBI proposes to convert this well to an acid gas injection well.

14. I hereby certify that the foregoing is true and correct
Name (Printed/Typed)

Title

Agent for TBI

Date

4/6/2004

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

LISBON B-814

LIST OF ATTACHMENTS

Attachment No. 1	Site Map
Attachment No. 2	Map of Adjacent Wells <i>obsolete</i>
Attachment No. 3	Cross-Section, Structure Map, Completion Data and Summary
Attachment No. 4	Cement Bond Log
Attachment No. 5	Proposed Completion and Well Bore Diagram
Attachment No. 6	Completion Data and Well Bore Diagrams for Offset Wells
Attachment No. 7	Water Analysis
Attachment No. 8	List of Producing Wells
Attachment No. 9	Ownership Map, List of Owners, Affidavit Notification

SWD WELL PERMIT MODIFICATION

Lisbon B-814 API # 43-037-30082

Tom Brown Inc. is requesting a permit to convert the Lisbon B-814 well into an acid gas injection well. This well has been shut-in for the last 10 years. It is completed in the Mississippian Leadville formation in the Lisbon Field, San Juan County, Utah.

The following document contains information to support this modification.

1. TBI is the operator and major working interest owner of wells located in the Lisbon Field, San Juan County, Utah. TBI's business address is provided below:

Tom Brown Inc.
555 17th Street
Suite 1850
Denver, CO 80202

2. The Lisbon B-814 is an existing shut-in well. The well was spudded on 7/8/1972.
3. During the initial production of the field, the wells produced both oil and gas and the gas was separated and re-injected. As the oil production declined, the Lisbon Gas Plant was built to process and sell the gas. The make-up of the gas has changed over time and the plant is currently being re-configured. The new process will concentrate the off gases into an "acid-gas" stream and this acid gas is what will be injected into B-814.

The acid gas stream is approximately 4% water, 50% H₂S and 46% CO₂.

4. Enclosed as Attachment No. 1 (Site Map), is a plat of the B-⁸¹⁴624.

5. Enclosed as Attachment No. 2 (Site Diagram of Adjacent Wells), is a plat showing that portion of the Lisbon Field in the area adjacent to the Lisbon B-814. The legal location for the well is 2601' FSL, 1482' FWL, Sec. 14, T30S, R24E, San Juan County, Utah.

Shown on the plat is a circle of one-half mile radius centered on the Lisbon B-814 well. The ½ mile radius encompasses the area of the review, within which TBI is required to investigate all wells for mechanical integrity. The ½ mile radius also identifies those

Tom Brown Inc.
Lisbon B-814 Permit Application

lands, the owners thereof, which must be provided notice of this application. The following wells are located within this ½ mile radius: D-715 (P&A'd), A-814 (P&A'd), B-614 (producing), B-814.

*But not the B-614A
Do we need to
consider BHL as well?*

6. TBI proposes to utilize the Lisbon B-814 as a disposal well for gas re-injection from the Lisbon Gas Plant. This gas was produced from wells in the Lisbon Field. The Lisbon Field is a unitized field that is managed by the Moab Field office of the BLM.
7. TBI proposes to utilize the Mississippian Leadville formation as the disposal zone. This formation is also the producing formation. The gross injection interval in the Lisbon B-814 will be from 8476' to 8650'.
8. The Lisbon Field is located upon a large faulted anticlinal feature that encompasses approximately 5,000 acres. Structural closure on the field is almost 2,000 feet. When discovered the Lisbon structure was filled to the spill point with hydrocarbons. The northeast boundary of the anticline is bordered by a high angle reverse fault. Displacements on this fault are as much as 2,100 feet. The entire Lisbon anticline is totally encased by the Paradox salt. The Tom Brown, Inc. B-814 well that is being proposed for the re-injection of acid gas is located on the southeast flank of the Lisbon anticline, approximately 1,700 feet to 1,800 feet low to the anticline's crest.

It is proposed that the B-814 well will be utilized in the field as a acid gas re-injection well. The Mississippian Leadville is the recipient formation. The Leadville Formation is overlain by the Pennsylvanian Molas Formation, a vari-colored shale; the Pennsylvanian Pinkerton Trail Formation, a gray-brown dense dolomite interbedded with anhydrite, gray dolomitic siltstones, and thin gray-green shales; and the Pennsylvanian Paradox Salt, a thick salt containing beds of black shale, dolomite, dolomitic sands and anhydrite. Taken together, any or all of these beds would provide a top seal for the Leadville Formation. The Devonian Ouray Formation, a white, gray, or buff limestone, largely lacking effective porosity and permeability in the Lisbon Field area, underlies the Leadville Formation. The Ouray Formation will form an effective bottom seal at the B-814. The lower 100' +/- of the Leadville Formation in the area of the B-814 is also devoid of effective porosity and permeability and would serve to re-enforce a bottom seal.

There are no sources of underground drinking water near the Lisbon B-814.

Included by reference is the reservoir survey ^{referenced} presented by Tom Brown for the approval of the B-624 permit application which was approved in 2003. .

Attachment No. 3 contains a structure map, cross-section, completion summary and data.

9. The Cement Bond Log for the Lisbon B-814 is included in Attachment No. 4.

The write up for the completion procedure of the Lisbon B-814 and the wellbore diagram is included in Attachment No. 5.

Completion data and logs for the 3 other wells in the review are located in Attachment 6. D-715 and A-814 are plugged and B-614 is in production.

10. The source of fluid and gases for disposal in the Lisbon B-814 will be from the wells in the Lisbon Field that have been processed in the Lisbon Plant. Enclosed as Attachment No. 7 are standard analyses of formation produced water.

Various produced water samples were mixed with each other and with the Lisbon B-624 water. The water Deposition Potential Indicators analysis shows that there is little scaling potential in the mixed waters. This is the same type of water that will be injected into the B-814.

The analysis of the Mississippian Leadville water from the Lisbon B-624 is 76,671 mg/L of total dissolved solids. This is above the 10,000 ppm value utilized by the Board as the upper threshold for "fresh water."

11. A list of wells that may use the Lisbon B-814 well for disposal is included in Attachment No. 8.
12. The maximum injection volume in the Lisbon B-814 is estimated to be 1.3 MMSCF/day. The ~~estimated~~ injection pressure is 1200 psig at the surface.
13. Enclosed as Attachment No. 8 is a list of all the owners, operators, royalty and surface interest owners located within ½ mile radius of the Lisbon B-814. The surface owner is the BLM and the mineral owners are the BLM and SITLA.

An affidavit certifying that TBI has notified all of the operators, owners, and surface interest owners located within ½ mile radius of the Lisbon B-814 well is also included in Attachment No. 8.

ATTACHMENT NO. 1

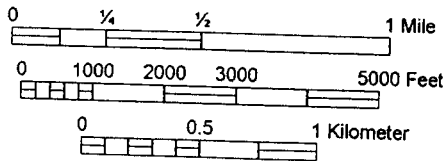
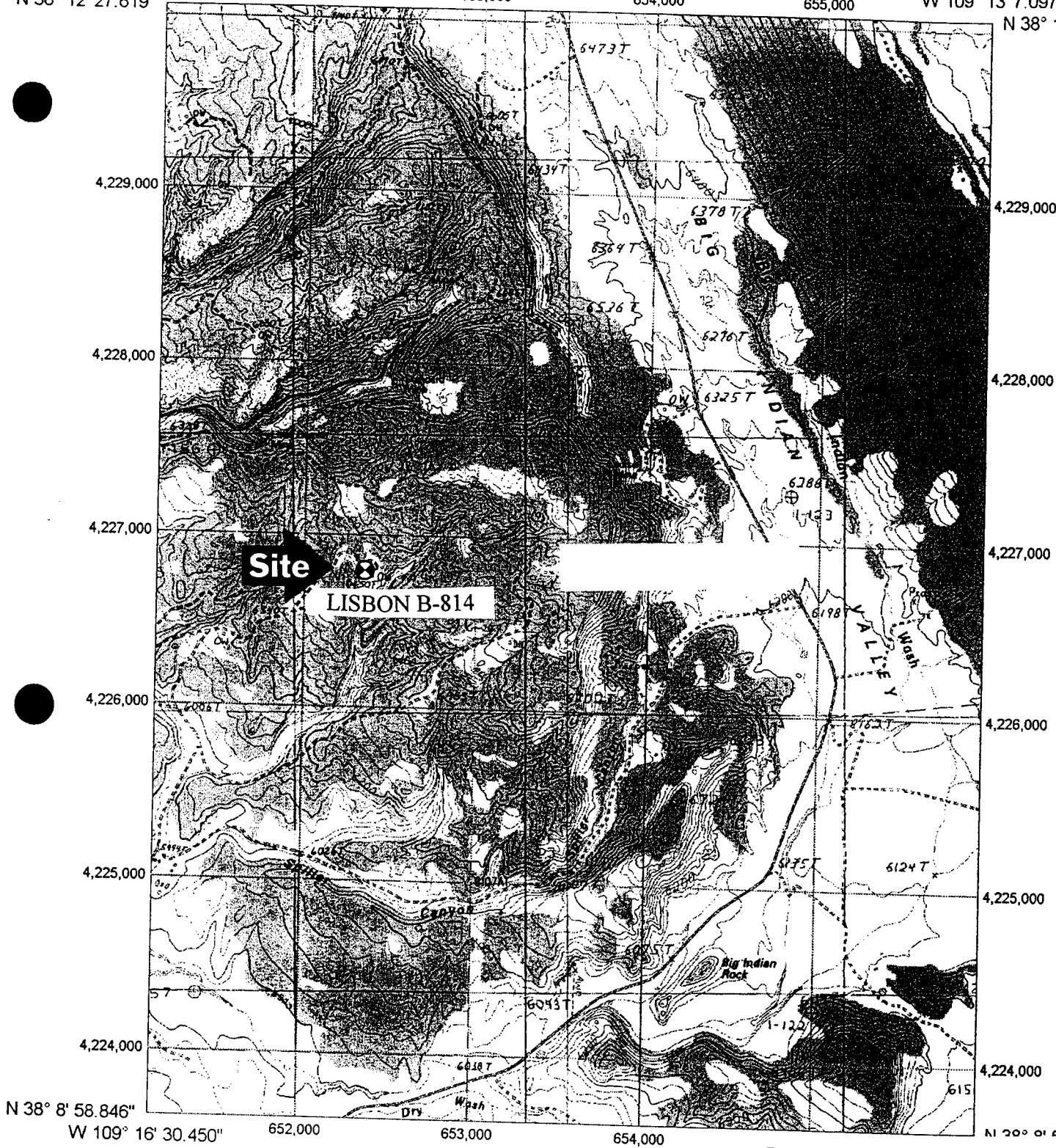
SITE MAP

W 109° 16' 25.525"
N 38° 12' 27.619"

Lisbon A-713A

W 109° 13' 7.097"

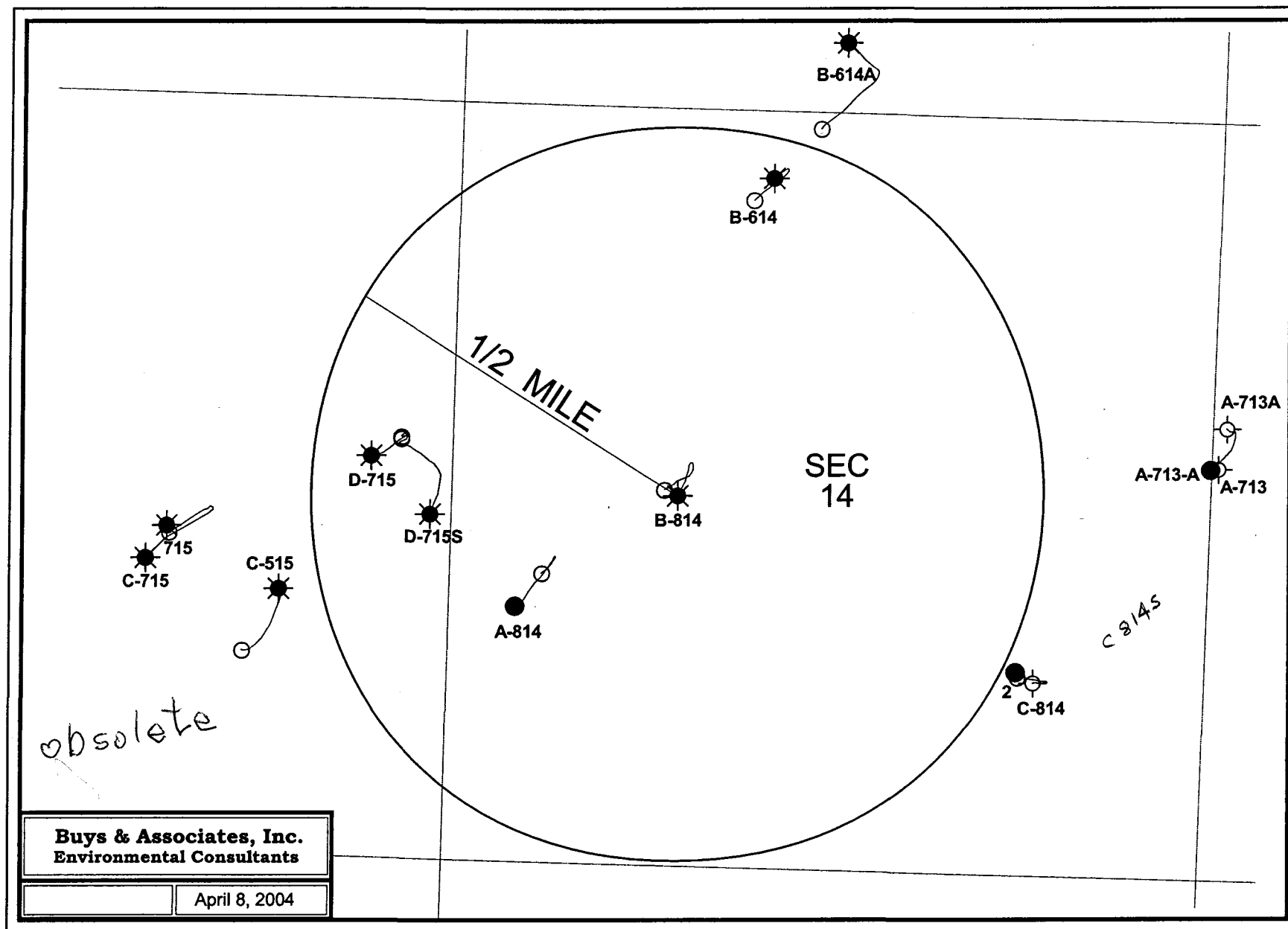
N 38° 12' 24.654"



LISBON B-814
NENW, SEC 14, T30S, R24E
SAN JUAN COUNTY, UTAH

1927 North American Datum; UTM grid zone 12
Generated by BigTopoPro (www.igage.com)
Map compiled from USGS Quads: Sandstone Draw; UT Lisbon
County; UT

ap

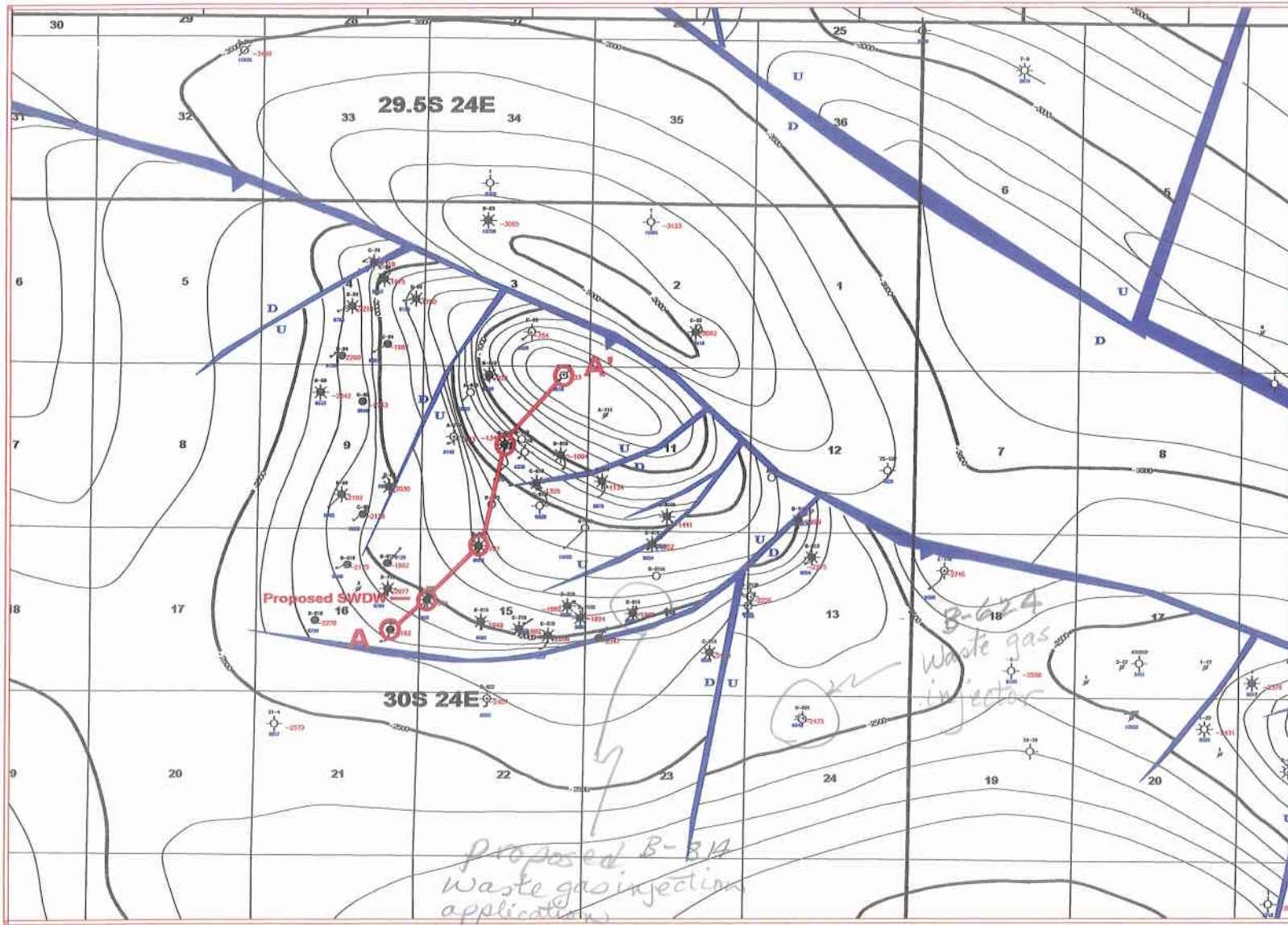


ATTACHMENT NO. 3

**CROSS-SECTION, STRUCTURE MAP,
COMPLETION DATA**

Lisbon Field

San Juan County, Utah



Structure top of Mississippian

B-814
 OFFSET WELL COMPLETION DATA
 REVISED: April 11, 2004

Injection Zone: 8476'-8640'

WELL	SURFACE CASING				PRODUCTION CASING			
	SIZE	DEPTH	CEMENT AMOUNT	CEMENT TOP	SIZE	DEPTH	CEMENT AMOUNT	ESTIMATED CEMENT TOP
B-814	95/8", 43.5#	1003'	450sx 50/50 Poz 150sx "C"	Circ to surface	51/2", 17# J-55, N-80	9450'	900 sx Halcolite 150sx "C"	5170'
B-614	133/4" 48#	1245'	565sx, 50/50 Pozmix,	Circ to surface	9 5/8", 36#&40# J-55 7", N-80,	4450' 9018	850sx, 125sx	5800' <i>Integrity Suspect</i>
D-715	103/4", 40.5#	750"	375 sx, Pozmix	Circ to surface	51/2" 15.5 7 17#	8885'	1150sx	3775' <i>Waipstock (integrity @ Linc. 4/10) What is diam of main leg.</i>
A-814	10 3/4", 40.5#	975'	540 sx	Circ to surface	51/2", 17#	9015'	125sx 2300sx	3600'

A

43037162530000 1526 ft 43037162370000

PURE OIL CO UNOCAL

LISBON UNIT D-816 LISBON UNIT A-7

01620FSL 01220FEL 02620FNL 00125F

TWP: 30 S - Range: 24 E - Sec. 16 TWP: 30 S - Range: 24 E

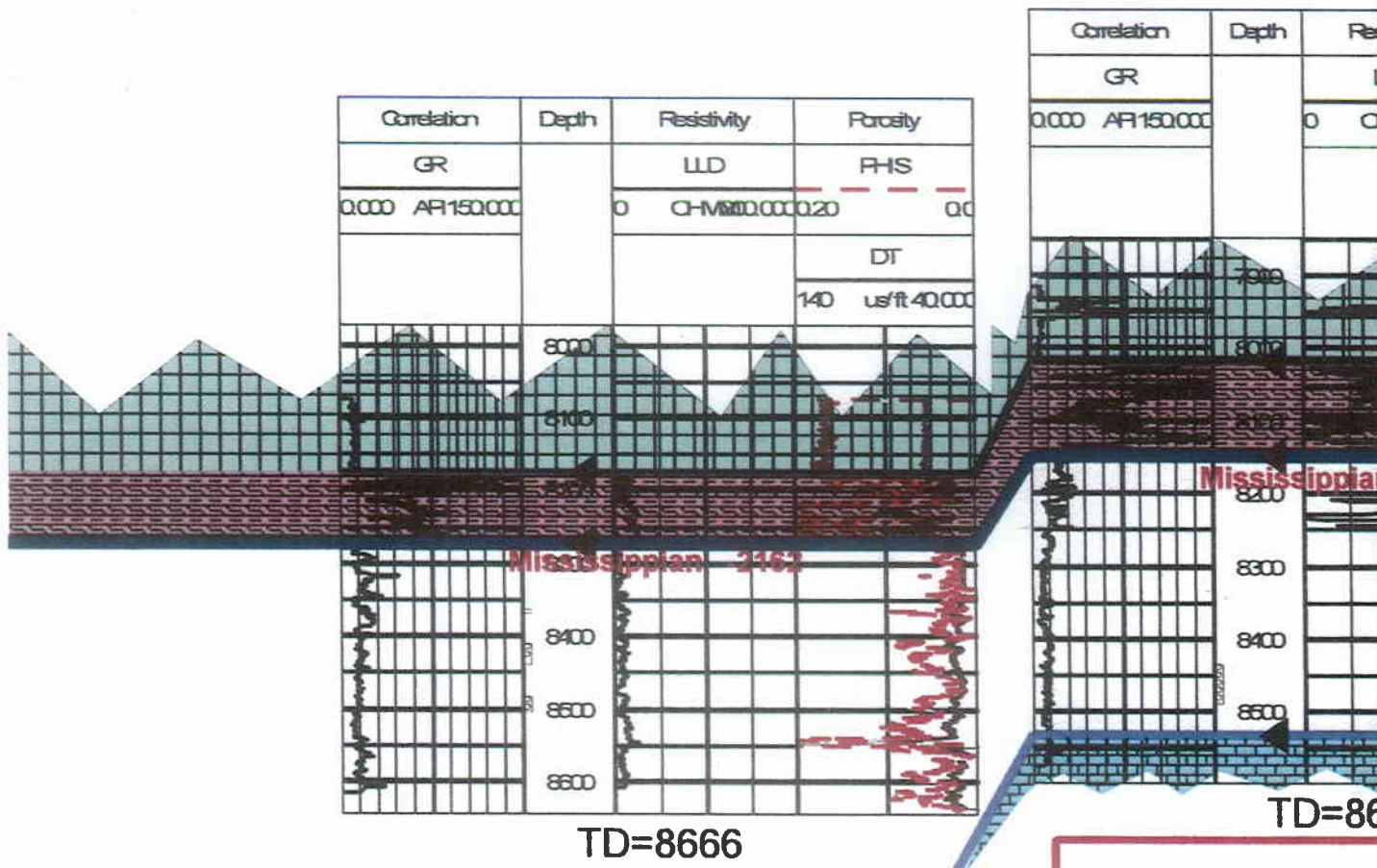
-500

-1000

-1500

-2000

-2500



0

2410 ft

43037151230000

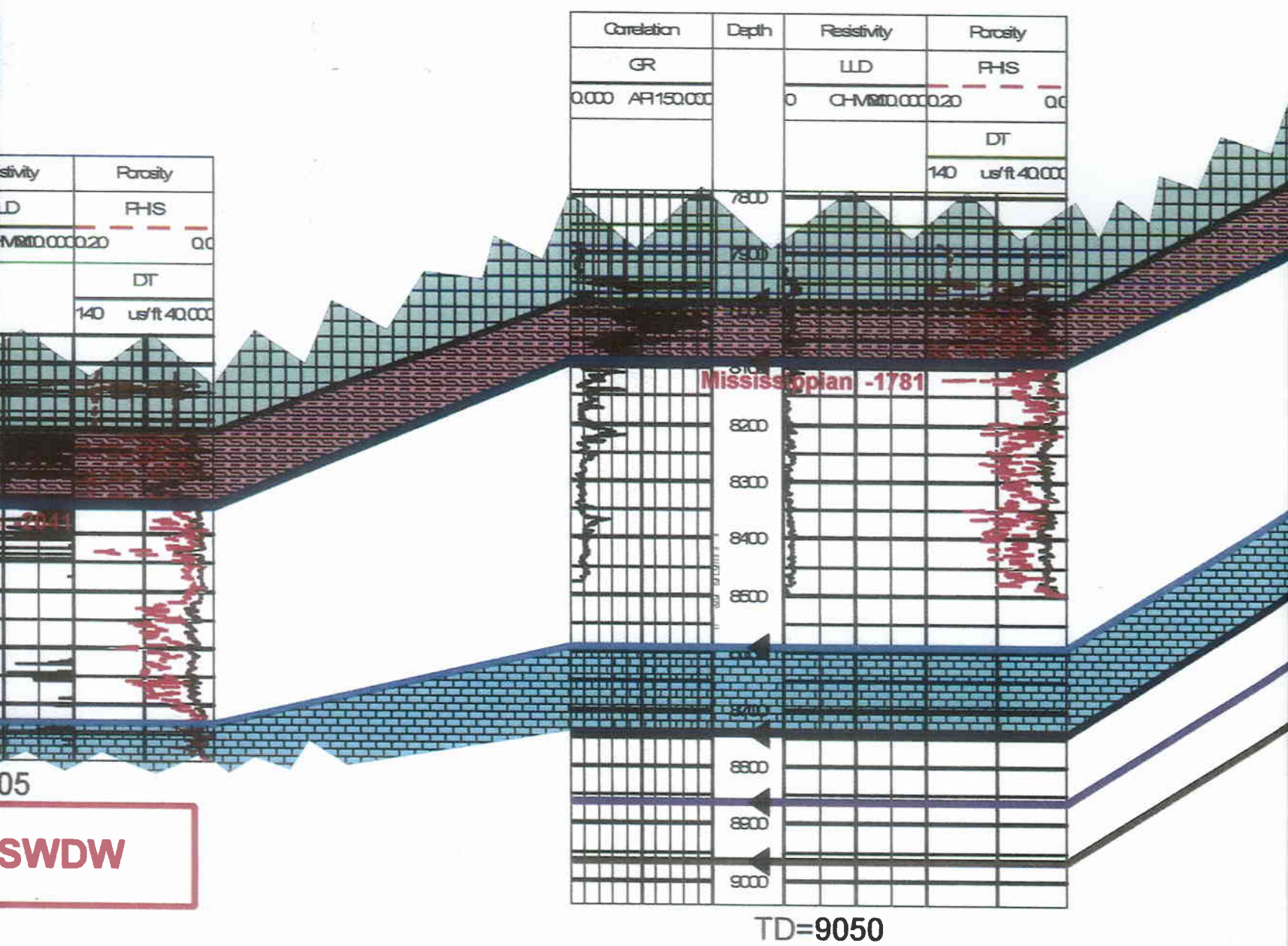
UNOCAL

ARNOLD 21-15 (LISBON) B-615

00765FNL 01840FWL

TWP: 30 S - Range: 24 E - Sec. 15

15
WL
- Sec. 15

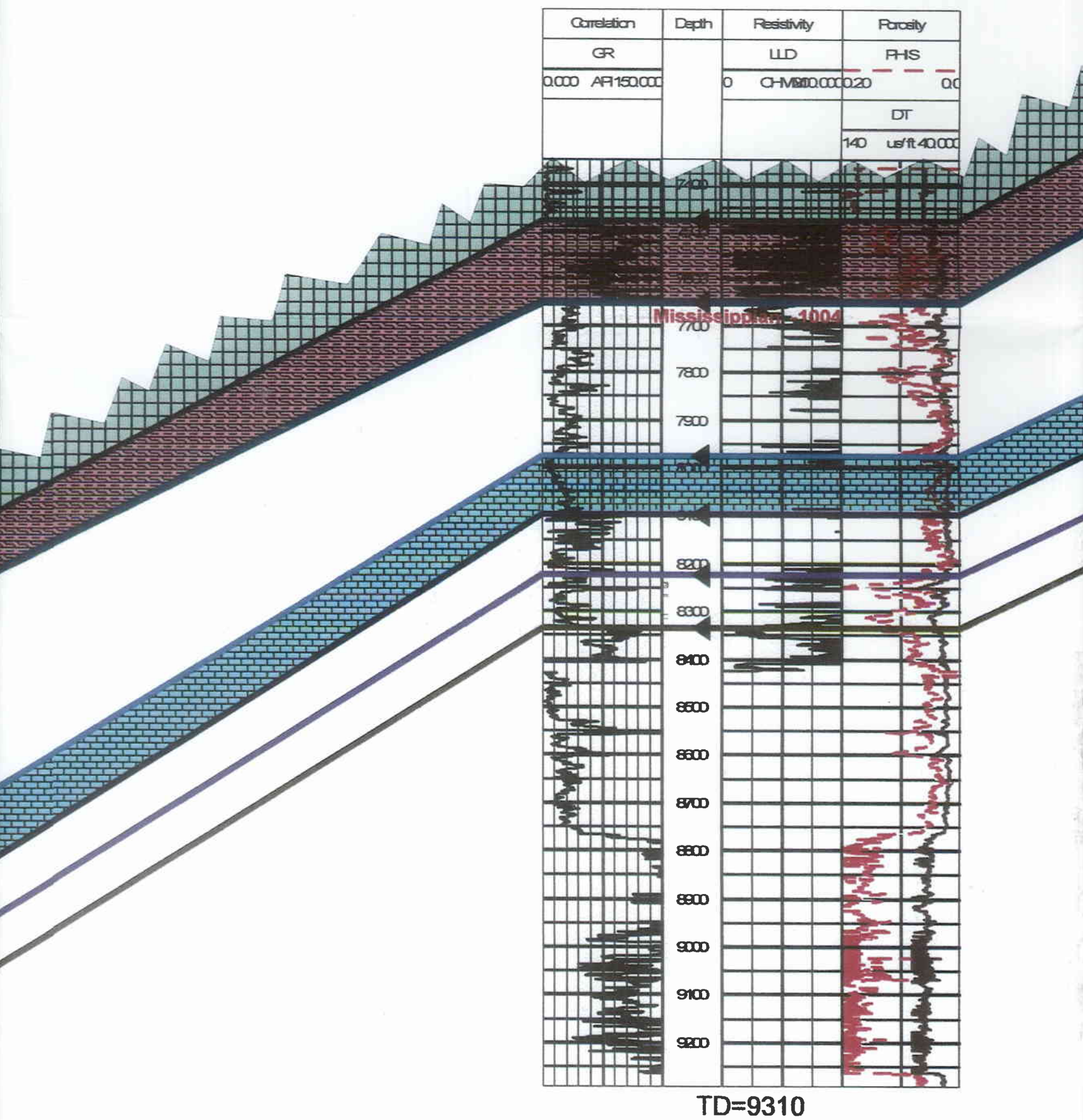


3877 ft

43037164710000

27

UNOCAL
NW LISBON USA A D-810
01895FSL 00755FEL
TWP: 30S - Range: 24E - Sec. 10



23 ft

43037306940000

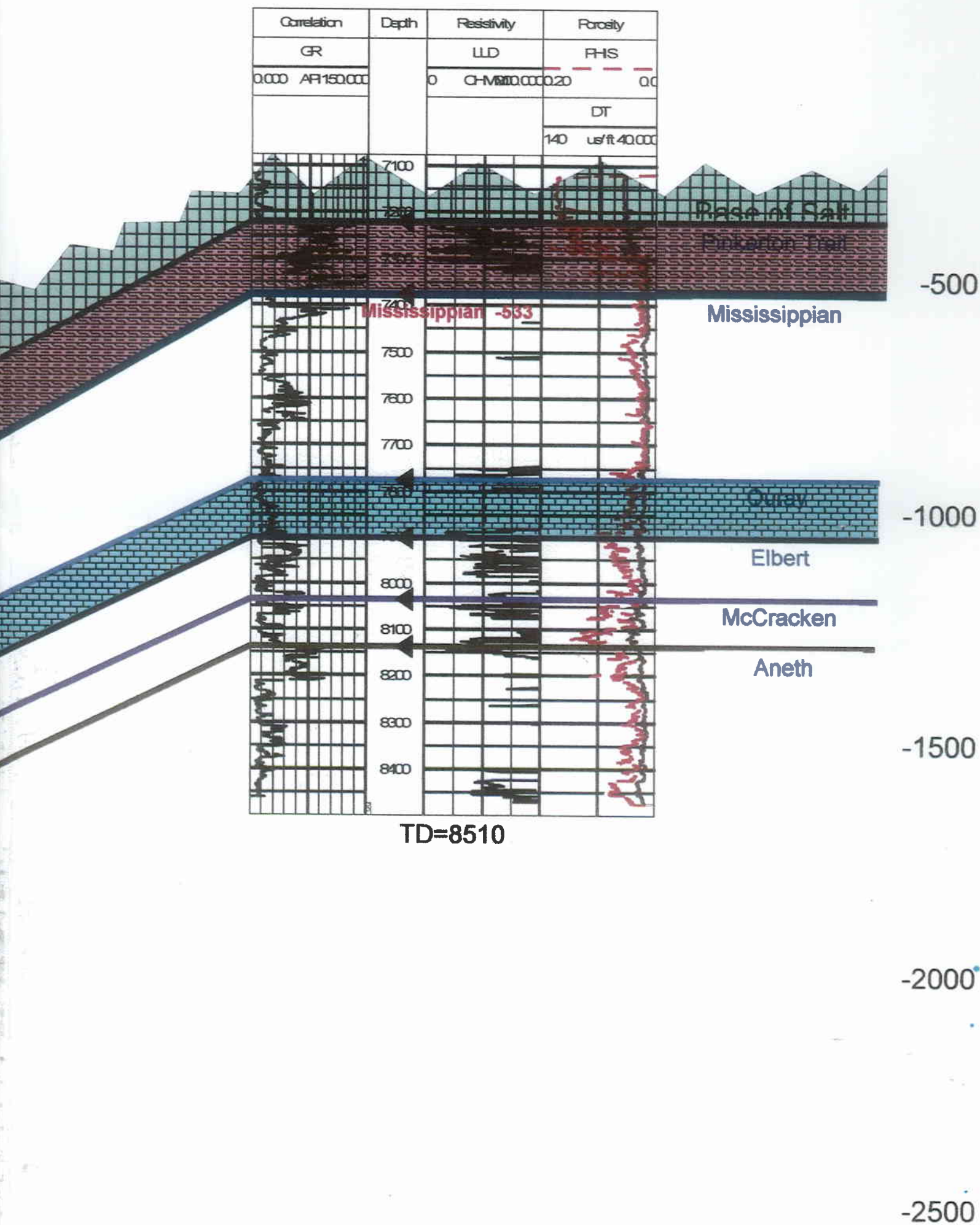
UNOCAL

LISBON UNIT D-610

00565FNL 00964FEL

TWP: 30 S - Range: 24 E - Sec. 10

A'



ATTACHMENT NO. 4

CEMENT BOND LOG

Cement Bond Log Gamma Ray Collars

can be viewed by going to our web site
www.ogm.utah.gov

Go to the

Oil & Gas Program

Well Data Search

Enter the Oil and Gas Information System

Using the bar on the top of the screen

Click on

Well Logs

Search Well Logs

Click on Use Comma for Multiples and type
4303730082

Click on Submit

Click on View or Download

ATTACHMENT NO. 5

PROPOSED COMPLETION AND WELLBORE DIAGRAM

Completion Procedures for the B-814 Well

1. MIRU workover rig. Notify UT DOGM at least 3 days prior that a pressure test is being conducted.
2. Release packer and trip out of hole with tubing and packer.
3. Pressure test backside to 1200 psi for 30 minutes using pressure recorders.
4. Set permanent packer at 8436'.
5. Trip in with 2-7/8 " tubing and sting into packer.
6. Set profile plug at bottom of 2-7/8" tubing.
7. Pressure test tubing to 1200 psi for 30 minutes using pressure recorders.
8. Pull tubing profile plug.
9. Run tubing inspection log.
10. Put well on gas re-injection

Operator's
Wellwork-
Completion
Procedure

absolute
OK 7/7/82

WELLBORE DIAGRAM

PROPOSED ACID GAS INJECTION

Surface Loc: 2601' FSL & 1482' FWL, Sec. 14

Operator: Tom Brown, Inc.
 Well Name: Lisbon B-814
 Lease Number: 8910079759
 Location: NESW Sec. 14-T30S-R24E
 Field: Lisbon
 County, State: San Juan County, UT
 API Number: 43-037-30082
 Diagram Date: 3/23/2004 jw

FORMATIONS

Homaker Trail 3162
 Ismay 4040
 Paradox Salt 4386
 Base Salt 8350
 Mississippian 8470
 Ouray 8916

9-5/8" 43.5# N-80 csg set @ 1003'. Cmt'd w/ 450 sx 50/50 Poz f/b 150 sx "C" - cmt to surf (set 7/13/72)

Permanent Packer 8436'

Cmt retainer @ 8658'

Cmt retainer @ 8721'

Cmt retainer @ 8783'

Cmt retainer @ 8829'

PBTD 8935'
 8965'

KB 6482'

GL 6468'

Well History

Spud Date: 7/8/1972
 TD Reached: 8/29/1972
 Completion Date: 10/13/1972

Tubing Detail:

KB	14.00'
"R" Nipple @ 8431	1.00'
Baker R-3 5-1/2" x 2-7/8" pkr 18#k compr.	7.00'
124 jts 2-7/8" J-55 EUE 8rd tbg	8,414.00
EOT	8436.00'

5/1991: Perf'd w/4 spf, acidize w/4300 gal 15% HCL SWIC acid

5/1991: Perf'd w/4 spf, acidize w/500 gal 15% HCL

8/1982: Perf'd w/4 spf, acidize w/2000 gals 28 HCL
 Sqzd w/150 sx "G" cmt

9/1972: Perf'd w/ 2 spf. Acdz w/500 gals 28% HCL acid
 Sqzd w/150 sx cmt

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
 Sqzd perms w/185 sx cmt

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
 Sqzd perms w/200 sx cmt

5-1/2" 17# J-55 & N-80 csg @ 9450'.
 Cemented w/ 900 sx Halcolite; f/b 150 sx C.

B-814
 Wellbore
 Diagram

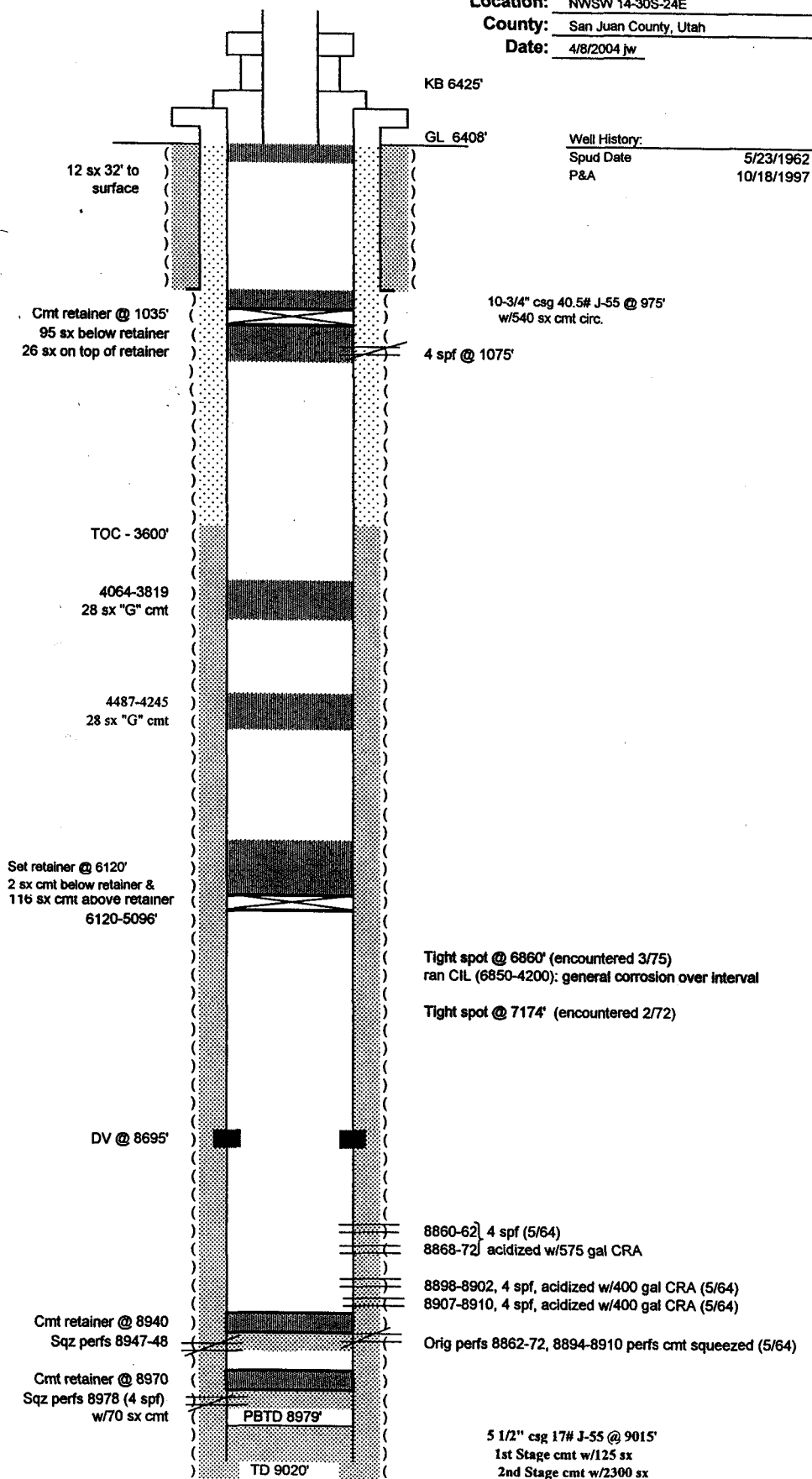
ATTACHMENT NO. 6

COMPLETION AND WELLBORE DIAGRAMS FOR OFFSET WELLS

WELLBORE DIAGRAM

Location: 1980' FSL, 660' FWL

Company: TOM BROWN INC.
 Lease Name: Lisbon A-814
 Lease Number: _____
 Location: NWSW 14-30S-24E
 County: San Juan County, Utah
 Date: 4/8/2004 jw



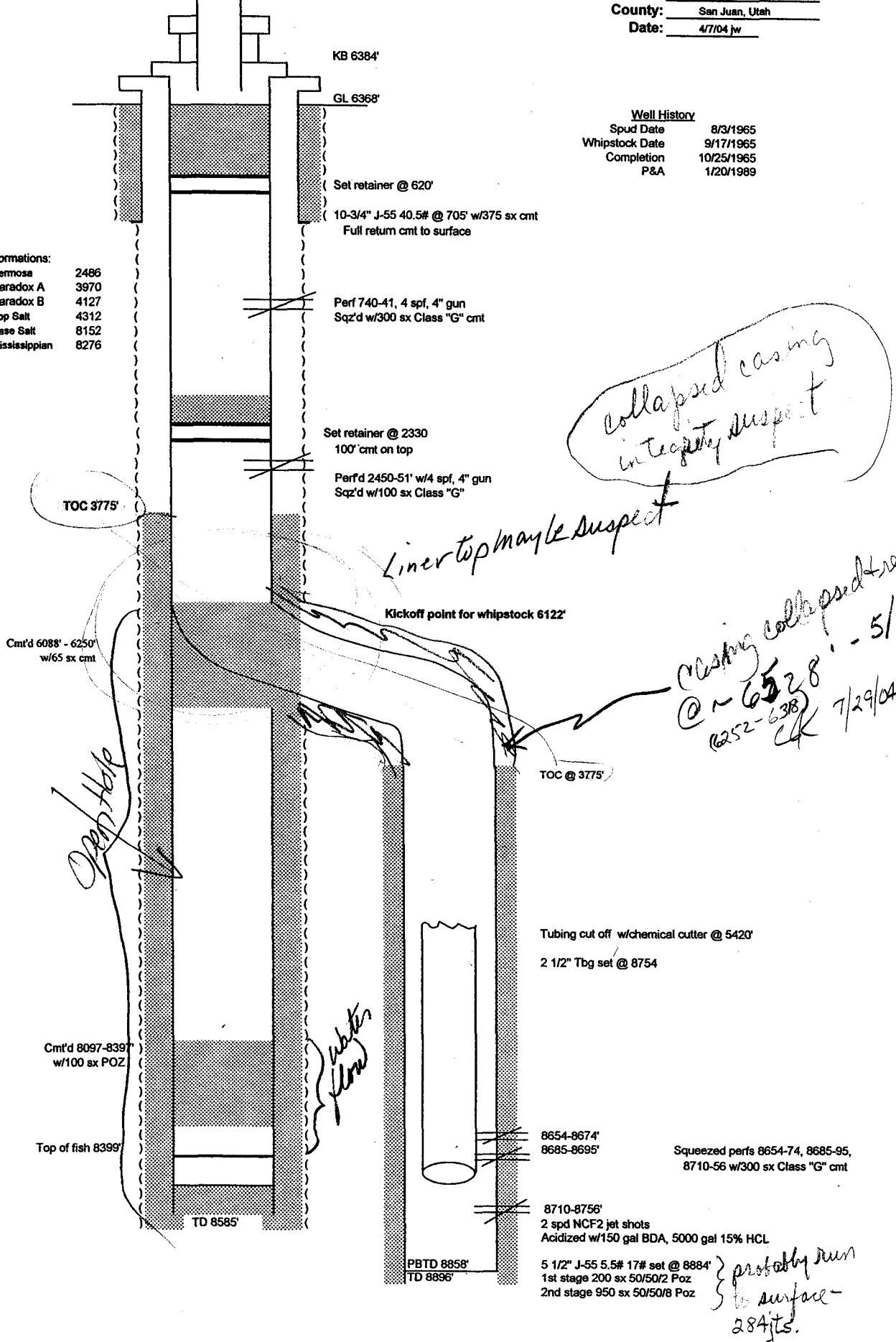
WELLBORE DIAGRAM

Location: 2405' FNL, 335' FEL
Bottom Hole Location (Whipstock):
2928' FNL, 122' FEL

Company: TOM BROWN INC.
Lease Name: Lisbon D-715 & D-715S
Lease Number:
Location: SENE Sec 15-30S-24E
County: San Juan, Utah
Date: 4/7/04 jw

Formations:
Hermosa 2486
Paradox A 3970
Paradox B 4127
Top Salt 4312
Base Salt 8152
Mississippian 8276

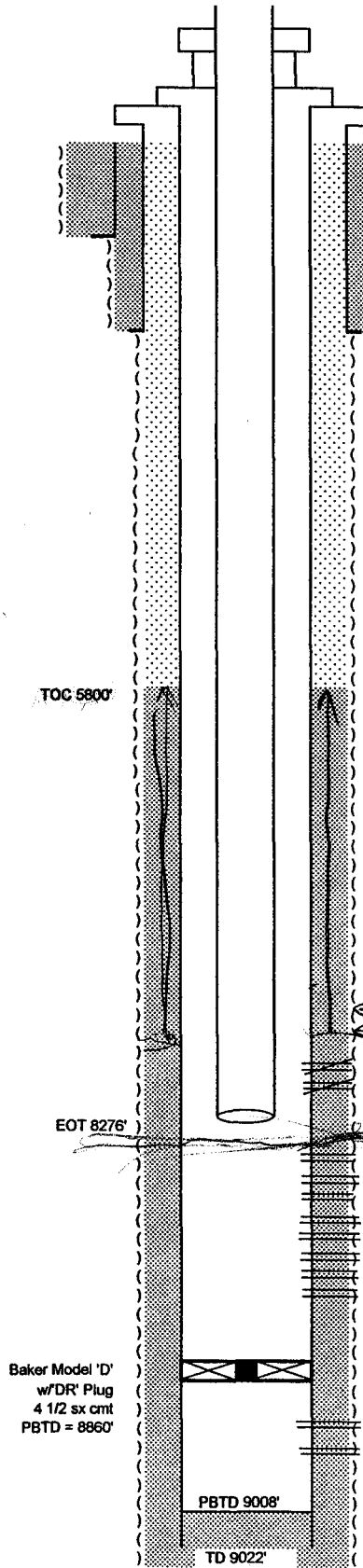
Well History
Spud Date 8/3/1965
Whipstock Date 9/17/1965
Completion 10/25/1965
P&A 1/20/1989



WELLBORE DIAGRAM

Company: TOM BROWN INC.
Lease Name: Lisbon B-614
Lease Number:
Location: NENW Sec 14-T30S-R24E
County: San Juan County, CO
Date: Rev 3/24/04 jw

Dual? G1W?
2000 MCF/D



KB' 6747'

Spud Date: 01/19/60
Completion Date: 05/15/60

GL - 6733'

13 3/8" 48# H-40 @ 1245'.
Cmt w/565 sx 50/50 Posmix, 200 sx Neat cmt

9-5/8" 36# & 40# J-55 @ 4450'. Cmt w/850 sx

Tubing Detail

KB	12.00
XQ 2 7/8" EUEx3.5" EUE swage	0.29
2 7/8" 6.5# N-80 tbg (264 jts)	8226.20
Standard Seating Nipple	1.05
2 7/8" 6.5# N-80 tbg (1 jt)	31.56
Lok-set pkr 2 7/8" x 7" w/collar on btm	4.43
EOT	8275.52

Integrity Suspect!

Order Book
1960

8078

8079

8192-8216 } Squeezed Perfs w/100 sx "G" cmt
8228-8246 } (2002)

EOT 8276'

8296-8308 } Mississippi Perfs reperfed 6/11/03
8322-8352 } 4 spf, 90 degree (168 holes)
8362-8402 } Acidized w/4000 gal 15% SWIC HCL acid w/
8422-8436 } 200 7/8" BIO perf ball sealers
8446-8462
8468-8490
8502-8520
8526-8548

Baker Model 'D'
w/DR Plug
4 1/2 sx cmt
PBTD = 8860'

McCracken Perfs
8905-43
8900-90

PBTD 9008'

TD 9022'

7" 23, 26 & 29# N-80 @ 9018' DV @ 8108'
1st Stg: 125 sx

6/5/03 Pkr 8290 Abundant hold 1000# for 20 min
6/6/03 Pkr 8290 Abundant hold 1000# for 20 min
6/12/03 Wouldnt hold 1000# for 30 min
Pkr. @ 8271

d. didnt work - had to pull

@ 8078-79

Cement Evaluation with Thickness

can be viewed by going to our web site
www.ogm.utah.gov

Go to the

Oil & Gas Program

Well Data Search

Enter the Oil and Gas Information System

Using the bar on the top of the screen

Click on

Well Logs

Search Well Logs

Click on Use Comma for Multiples and type

4303731351 – Lisbon Unit B-614

Click on Submit

Click on View or Download

Bond Cement Log

can be viewed by going to our web site
www.ogm.utah.gov

Go to the

Oil & Gas Program

Well Data Search

Enter the Oil and Gas Information System

Using the bar on the top of the screen

Click on

Well Logs

Search Well Logs

Click on Use Comma for Multiples and type

4303716252 – Lisbon Unit D-715

Click on Submit

Click on View or Download

Bond Cement Log

can be viewed by going to our web site
www.ogm.utah.gov

Go to the

Oil & Gas Program

Well Data Search

Enter the Oil and Gas Information System

Using the bar on the top of the screen

Click on

Well Logs

Search Well Logs

Click on Use Comma for Multiples and type

4303716238 – Lisbon Unit A-814

Click on Submit

Click on View or Download

ATTACHMENT NO. 7

WATER ANALYSIS

Analytical Laboratory Report for:
Tom Brown



UNICHEM Representative: Clyde Willis

Production Water Analysis

Listed below please find water analysis report from: Lisbon Unit, B-624

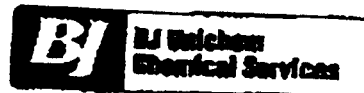
Water injected
into SWDW B-624

Lab Test No: 2002125772 Sample Date: 07/03/2002
Specific Gravity: 1.051
TDS: 76671
pH: 6.29

Cations:	mg/L	as:
Calcium	5740	(Ca ⁺⁺)
Magnesium	682	(Mg ⁺⁺)
Sodium	22964	(Na ⁺)
Iron	4.80	(Fe ⁺⁺)
Barium	15.20	(Ba ⁺⁺)
Strontium	257.00	(Sr ⁺⁺)
Manganese	5.20	(Mn ⁺⁺)
Anions:	mg/L	as:
Bicarbonate	1452	(HCO ₃ ⁻)
Sulfate	1050	(SO ₄ ⁻)
Chloride	44500	(Cl ⁻)
Gases:		
Carbon Dioxide	229	(CO ₂)
Hydrogen Sulfide	97	(H ₂ S)

Tom Brown

Lab Test No: 2002125772



DownHole SAT™ Scale Prediction @ 90 deg. F

Mineral Scale	Saturation Index	Momentary Excess (lbs/1000 bbls)
Calcite (CaCO ₃)	6.27	.122
Aragonite (CaCO ₃)	5.35	.118
Witherite (BaCO ₃)	.00434	-19.23
Strontianite (SrCO ₃)	.484	-.228
Magnesite (MgCO ₃)	.806	-.0294
Anhydrite (CaSO ₄)	1.01	.972
Gypsum (CaSO ₄ ·2H ₂ O)	1.28	65.58
Barite (BaSO ₄)	47.25	9.38
Celestite (SrSO ₄)	.59	-68.76
Silica (SiO ₂)	0	-44.74
Brucite (Mg(OH) ₂)	< 0.001	-.494
Magnesium silicate	0	-114.13
Iron hydroxide (Fe(OH) ₃)	< 0.001	< 0.001
Strengite (FePO ₄ ·2H ₂ O)	0	> 0.001
Siderite (FeCO ₃)	7.31	.144
Halite (NaCl)	.0139	-168331
Thenardite (Na ₂ SO ₄)	< 0.001	-.75301
Iron sulfide (FeS)	13.4	2.57

Interpretation of DHSat Results:

The Saturation Index is calculated for each mineral species independently and is a measure of the degree of supersaturation (driving force for precipitation) under the conditions modeled. This value ranges from 0 to infinity with 1.0 representing a condition of equilibrium where scale will neither dissolve nor precipitate. Values less than 1.0 are undersaturated and values greater than 1.0 are supersaturated. The scale is logarithmic, i.e. a Saturation Index of 3 is 10 times more saturated than a value of 2.

The Momentary excess is a measure of how much scale would have to precipitate to bring the system back to a non-scaling condition. This value ranges from negative (dissolving) infinity to positive (precipitating) infinity. The Momentary Excess represents the amount of scale possible while the Saturation Level represents the probability that scale will form.

Analytical Laboratory Report for: Tom Brown



UNICHEM Representative: Clyde Willis

Production Water Analysis

Listed below please find water analysis report from: Lisbon Unit, B-912

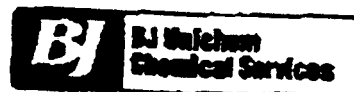
water produced
from Mississippian
Reservoir

Lab Test No: 2002125773 Sample Date: 07/03/2002
Specific Gravity: 1.072
TDS: 110032
pH: 6.13

Cations:	mg/L	as:
Calcium	4165	(Ca ⁺⁺)
Magnesium	871	(Mg ⁺⁺)
Sodium	37473	(Na ⁺)
Iron	3.10	(Fe ⁺⁺)
Barium	0.70	(Ba ⁺⁺)
Strontium	117.00	(Sr ⁺⁺)
Manganese	0.39	(Mn ⁺⁺)
Anions:	mg/L	as:
Bicarbonate	952	(HCO ₃ ⁻)
Sulfate	1650	(SO ₄ ⁻²)
Chloride	64800	(Cl ⁻)
Gases:		
Carbon Dioxide	125	(CO ₂)
Hydrogen Sulfide	202	(H ₂ S)

Tom Brown

Lab Test No: 2002125773



DownHole SAT™ Scale Prediction @ 90 deg. F

Mineral Scale	Saturation Index	Momentary Excess (lbs/1000 bbl/s)
Calcite (CaCO ₃)	2.06	.0318
Aragonite (CaCO ₃)	1.76	.0267
Witherite (BaCO ₃)	< 0.001	-24.81
Strontianite (SrCO ₃)	.0802	-1.03
Magnesite (MgCO ₃)	.487	-.0551
Anhydrite (CaSO ₄)	1.16	44.45
Gypsum (CaSO ₄ ·2H ₂ O)	1.41	138.68
Bartite (BaSO ₄)	2.62	.256
Celestite (SrSO ₄)	.345	-113.37
Silica (SiO ₂)	0	-42.21
Brucite (Mg(OH) ₂)	< 0.001	-.411
Magnesium silicate	0	-111.8
Iron hydroxide (Fe(OH) ₃)	< 0.001	< 0.001
Strengite (FePO ₄ ·2H ₂ O)	0	> -0.001
Siderite (FeCO ₃)	1.75	.0302
Halite (NaCl)	.0349	-149771
Thenardite (Na ₂ SO ₄)	< 0.001	-79346
Iron sulfide (FeS)	8.03	1.64

Interpretation of DHSat Results:

The Saturation Index is calculated for each mineral species independently and is a measure of the degree of supersaturation (driving force for precipitation) under the conditions modeled. This value ranges from 0 to infinity with 1.0 representing a condition of equilibrium where scale will neither dissolve nor precipitate. Values less than 1.0 are undersaturated and values greater than 1.0 are supersaturated. The scale is logarithmic, i.e. a Saturation Index of 3 is 10 times more saturated than a value of 2.

The Momentary excess is a measure of how much scale would have to precipitate to bring the system back to a non-scaling condition. This value ranges from negative (dissolving) infinity to positive (precipitating) infinity. The Momentary Excess represents the amount of scale possible while the Saturation Level represents the probability that scale will form.

DownHole SAT(tm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) TB B-624 (50%)

2) TB B-912 (50%)

Report Date: 07-08-2002

SATURATION LEVEL		MOMENTARY EXCESS (Lbs/1000 Barrels)	
Calcite (CaCO ₃)	3.73	Calcite (CaCO ₃)	0.0630
Aragonite (CaCO ₃)	3.18	Aragonite (CaCO ₃)	0.0590
Witherite (BaCO ₃)	0.00135	Witherite (BaCO ₃)	-20.97
Strontianite (SrCO ₃)	0.210	Strontianite (SrCO ₃)	-0.477
Magnesite (MgCO ₃)	0.654	Magnesite (MgCO ₃)	-0.0384
Anhydrite (CaSO ₄)	1.22	Anhydrite (CaSO ₄)	45.56
Gypsum (CaSO ₄ *2H ₂ O)	1.50	Gypsum (CaSO ₄ *2H ₂ O)	119.13
Barite (BaSO ₄)	29.88	Barite (BaSO ₄)	4.83
Celestite (SrSO ₄)	0.520	Celestite (SrSO ₄)	-78.84
Silica (SiO ₂)	0.00	Silica (SiO ₂)	-40.47
Brucite (Mg(OH) ₂)	< 0.001	Brucite (Mg(OH) ₂)	-0.407
Magnesium silicate	0.00	Magnesium silicate	-105.89
Iron hydroxide (Fe(OH) ₃)	< 0.001	Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00	Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	3.63	Siderite (FeCO ₃)	0.0715
Halite (NaCl)	0.0263	Halite (NaCl)	-146838
Thenardite (Na ₂ SO ₄)	< 0.001	Thenardite (Na ₂ SO ₄)	-73629
Iron sulfide (FeS)	9.47	Iron sulfide (FeS)	2.10

SIMPLE INDICES

Langelier	0.981
Ryznar	4.18
Puckorius	0.931
Larson-Skold Index	84.26
Stiff Davis Index	0.346
Oddo-Tomson	-0.0394

OPERATING CONDITIONS

Temperature (°F)	90.00
Time(secs)	1.00

UNICHEM - Midland Analytical Laboratory
P.O. Box 61427, Midland, Texas 79711

DownHole SAT (tm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) TB B-624 (75%)

2) TB B-912 (25%)

Report Date: 07-08-2002

SATURATION LEVEL		MOMENTARY EXCESS (lbs/1000 Barrels)	
Calcite (CaCO ₃)	4.86	Calcite (CaCO ₃)	0.0849
Aragonite (CaCO ₃)	4.14	Aragonite (CaCO ₃)	0.0811
Witherite (BaCO ₃)	0.00252	Witherite (BaCO ₃)	-19.70
Strontianite (SrCO ₃)	0.319	Strontianite (SrCO ₃)	-0.335
Magnesite (MgCO ₃)	0.732	Magnesite (MgCO ₃)	-0.0329
Anhydrite (CaSO ₄)	1.15	Anhydrite (CaSO ₄)	30.42
Gypsum (CaSO ₄ *2H ₂ O)	1.44	Gypsum (CaSO ₄ *2H ₂ O)	97.69
Barite (BaSO ₄)	40.70	Barite (BaSO ₄)	7.12
Celestite (SrSO ₄)	0.577	Celestite (SrSO ₄)	-69.07
Silica (SiO ₂)	0.00	Silica (SiO ₂)	-41.35
Brucite (Mg(OH) ₂)	< 0.001	Brucite (Mg(OH) ₂)	-0.431
Magnesium silicate	0.00	Magnesium silicate	-107.11
Iron hydroxide (Fe(OH) ₃)	< 0.001	Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00	Strengite (FePO ₄ *2H ₂ O)	> -0.001
Siderite (FeCO ₃)	5.14	Siderite (FeCO ₃)	0.0988
Halite (NaCl)	0.0204	Halite (NaCl)	-152565
Thenardite (Na ₂ SO ₄)	< 0.001	Thenardite (Na ₂ SO ₄)	-72991
Iron sulfide (FeS)	10.76	Iron sulfide (FeS)	2.33

SIMPLE INDICES

Langelier	1.09
Ryznar	4.01
Puckorius	0.743
Larson-Skold Index	68.40
Stiff Davis Index	0.450
Odde-Tomson	0.0959

OPERATING CONDITIONS

Temperature (°F)	90.00
Time (secs)	1.00

UNICHEM - Midland Analytical Laboratory
P.O. Box 61427, Midland, Texas 79711

DownHole SAT (tm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) TB B-624 (25%)

2) TB B-912 (75%)

Report Date: 07-08-2002

SATURATION LEVEL		MOMENTARY EXCESS (Lbs/1000 Barrels)	
Calcite (CaCO ₃)	2.74	Calcite (CaCO ₃)	0.0424
Aragonite (CaCO ₃)	2.34	Aragonite (CaCO ₃)	0.0382
Witherite (BaCO ₃)	< 0.001	Witherite (BaCO ₃)	-22.23
Strontianite (SrCO ₃)	0.128	Strontianite (SrCO ₃)	-0.664
Magnesite (MgCO ₃)	0.562	Magnesite (MgCO ₃)	-0.0438
Anhydrite (CaSO ₄)	1.26	Anhydrite (CaSO ₄)	58.69
Gypsum (CaSO ₄ *2H ₂ O)	1.54	Gypsum (CaSO ₄ *2H ₂ O)	138.60
Barite (BaSO ₄)	17.15	Barite (BaSO ₄)	2.55
Celestite (SrSO ₄)	0.448	Celestite (SrSO ₄)	-90.86
Silica (SiO ₂)	0.00	Silica (SiO ₂)	-39.59
Brucite (Mg(OH) ₂)	< 0.001	Brucite (Mg(OH) ₂)	-0.384
Magnesium silicate	0.00	Magnesium silicate	-104.56
Iron hydroxide (Fe(OH) ₃)	< 0.001	Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00	Strengite (FePO ₄ *2H ₂ O)	> -0.001
Siderite (FeCO ₃)	2.45	Siderite (FeCO ₃)	0.0451
Halite (NaCl)	0.0332	Halite (NaCl)	-140979
Thenardite (Na ₂ SO ₄)	< 0.001	Thenardite (Na ₂ SO ₄)	-74160
Iron sulfide (FeS)	7.68	Iron sulfide (FeS)	1.87

SIMPLE INDICES

Langelier	0.856
Ryznar	4.37
Puckorius	1.14
Larson-Skold Index	104.33
Stiff Davis Index	0.236
Odde-Tomson	-0.188

OPERATING CONDITIONS

Temperature (°F)	90.00
Time (secs)	1.00

UNICHEM - Midland Analytical Laboratory
P.O. Box 61427, Midland, Texas 79711

DownHole SAT (cm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) TB B-624 (25%)

2) TB B-912 (75%)

Report Date: 07-08-2002

SATURATION LEVEL		MOMENTARY EXCESS (Lbs/1000 Barrels)	
Calcite (CaCO ₃)	3.58	Calcite (CaCO ₃)	0.0430
Aragonite (CaCO ₃)	2.90	Aragonite (CaCO ₃)	0.0390
Witherite (BaCO ₃)	< 0.001	Witherite (BaCO ₃)	-23.15
Strontianite (SrCO ₃)	0.0472	Strontianite (SrCO ₃)	-1.74
Magnesite (MgCO ₃)	1.30	Magnesite (MgCO ₃)	0.0114
Anhydrite (CaSO ₄)	1.77	Anhydrite (CaSO ₄)	106.48
Gypsum (CaSO ₄ *2H ₂ O)	0.847	Gypsum (CaSO ₄ *2H ₂ O)	-10.19
Barite (BaSO ₄)	2.48	Barite (BaSO ₄)	1.61
Celestite (SrSO ₄)	0.343	Celestite (SrSO ₄)	-125.36
Silica (SiO ₂)	0.00	Silica (SiO ₂)	-110.84
Brucite (Mg(OH) ₂)	< 0.001	Brucite (Mg(OH) ₂)	-0.518
Magnesium silicate	0.00	Magnesium silicate	-165.09
Iron hydroxide (Fe(OH) ₃)	< 0.001	Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00	Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	5.51	Siderite (FeCO ₃)	0.0562
Halite (NaCl)	0.0241	Halite (NaCl)	-171107
Thenardite (Na ₂ SO ₄)	< 0.001	Thenardite (Na ₂ SO ₄)	-78151
Iron sulfide (FeS)	10.07	Iron sulfide (FeS)	1.88

SIMPLE INDICES

Langelier	1.35
Ryznar	3.38
Puckorius	0.145
Larson-Skold Index	103.85
Stiff Davis Index	1.79
Odde-Tomson	0.726

OPERATING CONDITIONS

Temperature (°F)	180.00
Time (secs)	1.00

UNICHEM - Midland Analytical Laboratory
P.O. Box 61427, Midland, Texas 79711

DownHole SAT (tm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) TB B-624 (754)

2) TB B-912 (254)

Report Date: 07-08-2002

SATURATION LEVEL		MOMENTARY EXCESS (Lbs/1000 Barrels)	
Calcite (CaCO ₃)	6.36	Calcite (CaCO ₃)	0.0808
Aragonite (CaCO ₃)	5.14	Aragonite (CaCO ₃)	0.0772
Witherite (BaCO ₃)	0.00211	Witherite (BaCO ₃)	-20.49
Strontianite (SrCO ₃)	0.119	Strontianite (SrCO ₃)	-1.04
Magnesite (MgCO ₃)	1.69	Magnesite (MgCO ₃)	0.0328
Anhydrite (CaSO ₄)	1.66	Anhydrite (CaSO ₄)	80.03
Gypsum (CaSO ₄ *2H ₂ O)	0.813	Gypsum (CaSO ₄ *2H ₂ O)	-24.30
Barite (BaSO ₄)	6.07	Barite (BaSO ₄)	6.07
Celestite (SrSO ₄)	0.456	Celestite (SrSO ₄)	-99.57
Silica (SiO ₂)	0.00	Silica (SiO ₂)	-115.78
Brucite (Mg(OH) ₂)	< 0.001	Brucite (Mg(OH) ₂)	-0.582
Magnesium silicate	0.00	Magnesium silicate	-168.85
Iron hydroxide (Fe(OH) ₃)	< 0.001	Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00	Strengite (FePO ₄ *2H ₂ O)	> -0.001
Siderite (FeCO ₃)	11.63	Siderite (FeCO ₃)	0.101
Halite (NaCl)	0.0149	Halite (NaCl)	-183416
Thenardite (Na ₂ SO ₄)	< 0.001	Thenardite (Na ₂ SO ₄)	-76729
Iron sulfide (FeS)	13.48	Iron sulfide (FeS)	2.34

SIMPLE INDICES

Langelier	1.59
Ryznar	3.01
Puckorius	-0.257
Larson-Skold Index	68.08
Stiff Davis Index	1.99
Odde-Tomson	1.01

OPERATING CONDITIONS

Temperature (°F)	180.00
Time (secs)	1.00

UNICHEM - Midland Analytical Laboratory
P.O. Box 61427, Midland, Texas 79711

DownHole SAT(tm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) TB B-624 (50%)

2) TB B-912 (50%)

Report Date: 07-08-2002

SATURATION LEVEL		MOMENTARY EXCESS (lbs/1000 Barrels)	
Calcite (CaCO ₃)	4.87	Calcite (CaCO ₃)	0.0614
Aragonite (CaCO ₃)	3.94	Aragonite (CaCO ₃)	0.0576
Witherite (BaCO ₃)	0.00112	Witherite (BaCO ₃)	-21.83
Strontianite (SrCO ₃)	0.0778	Strontianite (SrCO ₃)	-1.33
Magnesite (MgCO ₃)	1.51	Magnesite (MgCO ₃)	0.0219
Anhydrite (CaSO ₄)	1.73	Anhydrite (CaSO ₄)	94.27
Gypsum (CaSO ₄ *2H ₂ O)	0.837	Gypsum (CaSO ₄ *2H ₂ O)	-15.89
Barite (BaSO ₄)	4.38	Barite (BaSO ₄)	3.85
Celestite (SrSO ₄)	0.405	Celestite (SrSO ₄)	-111.49
Silica (SiO ₂)	0.00	Silica (SiO ₂)	-113.30
Brucite (Mg(OH) ₂)	< 0.001	Brucite (Mg(OH) ₂)	-0.549
Magnesium silicate	0.00	Magnesium silicate	-167.07
Iron hydroxide (Fe(OH) ₃)	< 0.001	Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00	Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	8.20	Siderite (FeCO ₃)	0.0781
Halite (NaCl)	0.0192	Halite (NaCl)	-177352
Thenardite (Na ₂ SO ₄)	< 0.001	Thenardite (Na ₂ SO ₄)	-77497
Iron sulfide (FeS)	12.10	Iron sulfide (FeS)	2.11

SIMPLE INDICES

Langelier	1.48
Ryznar	3.18
Puckorius	-0.0670
Larson-Skold Index	83.86
Stiff Davis Index	1.89
Oddo-Tomson	0.875

OPERATING CONDITIONS

Temperature (°F)	180.00
Time(secs)	1.00

UNICHEM - Midland Analytical Laboratory
P.O. Box 61427, Midland, Texas 79711

ATTACHMENT NO. 8
LIST OF PRODUCING WELLS

Lisbon					
Lisbon B 610 (MC)	Lisbon McCracken	043-037-16469		NE	NW
Lisbon D 610 (MC)	Lisbon McCracken	043-037-30694		NE	NE
Lisbon Fed B 614 A (MC) (P&A)	Lisbon McCracken	043-037-31351			
Egnar Unit 01	Lisbon SE	005-113-05012		SE	NE
Horse Range 01	Lisbon SE	005-113-06016		SE	NW
Horse Range 19-24	Lisbon SE	005-113-06105	590 FEL, 1690 FNL	SE	NE
Lisbon A 713A	Lisbon Unit	043-037-16236			
Lisbon A 715	Lisbon Unit	043-037-16237	125 FWL, 2620 FNL	SE	SW
Lisbon A 814 (P&A)	Lisbon Unit	043-037-16238		NW	SW
Lisbon B 084	Lisbon Unit	043-037-30054	1648 FSL, 2516 FWL	NE	SW
Lisbon B 094	Lisbon Unit	043-037-30695		SE	SW
Lisbon B 610 (MS)	Lisbon Unit	043-037-16469		NE	NW
Lisbon B 613	Lisbon Unit	043-037-16240		NE	NW
Lisbon B 614	Lisbon Unit	043-037-16468		NE	NW
Lisbon B 615	Lisbon Unit	043-037-15123	1840 FEL, 765 FNL	NE	NW
Lisbon B 616	Lisbon Unit	043-037-16242		NE	NW
Lisbon B 810	Lisbon Unit	043-037-31433		NE	SW
Lisbon B 814	Lisbon Unit	043-037-30082		NE	SW
Lisbon B 815	Lisbon Unit	043-037-16243		NE	SW
Lisbon B 912	Lisbon Unit	043-037-15769	1825 FWL, 505 FSL	SE	SW
Lisbon C 069	Lisbon Unit	043-037-16245	1935 FWL, 1288 FNL	NW	NE
Lisbon C 094	Lisbon Unit	043-037-16247		SW	SE
Lisbon C 715	Lisbon Unit	043-037-31074		NE	SW
Lisbon C 910	Lisbon Unit	043-037-31323		SW	SE
Lisbon D 084	Lisbon Unit	043-037-16250		NE	SE
Lisbon D 616	Lisbon Unit	043-037-15049	660 FEL, 660 FNL	NE	NE
Lisbon D 716	Lisbon Unit	043-037-31034	1325 FEL, 2240 FNL	SW	NE
Lisbon D 810	Lisbon Unit	043-037-16471		NE	SE
Lisbon D 89	Lisbon Unit	043-037-16251		NE	SE
Lisbon Fed 02-21 F	Lisbon Unit	043-037-15768		SE	NW
Lisbon Fed A 911	Lisbon Unit	043-037-31014		SW	SW
Lisbon Fed B 614 A (MS)	Lisbon Unit	043-037-31351		NE	NW
Lisbon Fed C 099	Lisbon Unit	043-037-30693	236 FSL, 2154 FEL	SE	SW
McIntyre Canyon 17-21	Lisbon SE	005-113-06080	1176 FWL, 2410 FNL	SW	NW
McIntyre Canyon Unit 01	Lisbon SE	005-113-05017		NE	NW
McIntyre Canyon Unit 06-H-18	Lisbon SE	005-113-06011		SE	NE
McIntyre Canyon Unit 08-34	Lisbon SE	005-113-06106	502 FEL, 970 FNL	NE	NE
Lisbon B 610 R (INJ)	Lisbon Unit				
Lisbon B 614 R (INJ)	Lisbon Unit	043-037-16468		NE	NW
Lisbon B 624 (SWD)	Lisbon Unit	043-037-16516		NE	NW
Lisbon B 810 (MS)	Lisbon Unit	043-037-31433		NE	SW
Lisbon B 816 (SWD)	Lisbon Unit	043-037-16244		NE	SW
Lisbon C 910 I (P&A)	Lisbon Unit	043-037-31805		SW	SE
Lisbon D 610 R (MC-Inj)	Lisbon Unit				
Lisbon D 810 R (INJ)	Lisbon Unit				

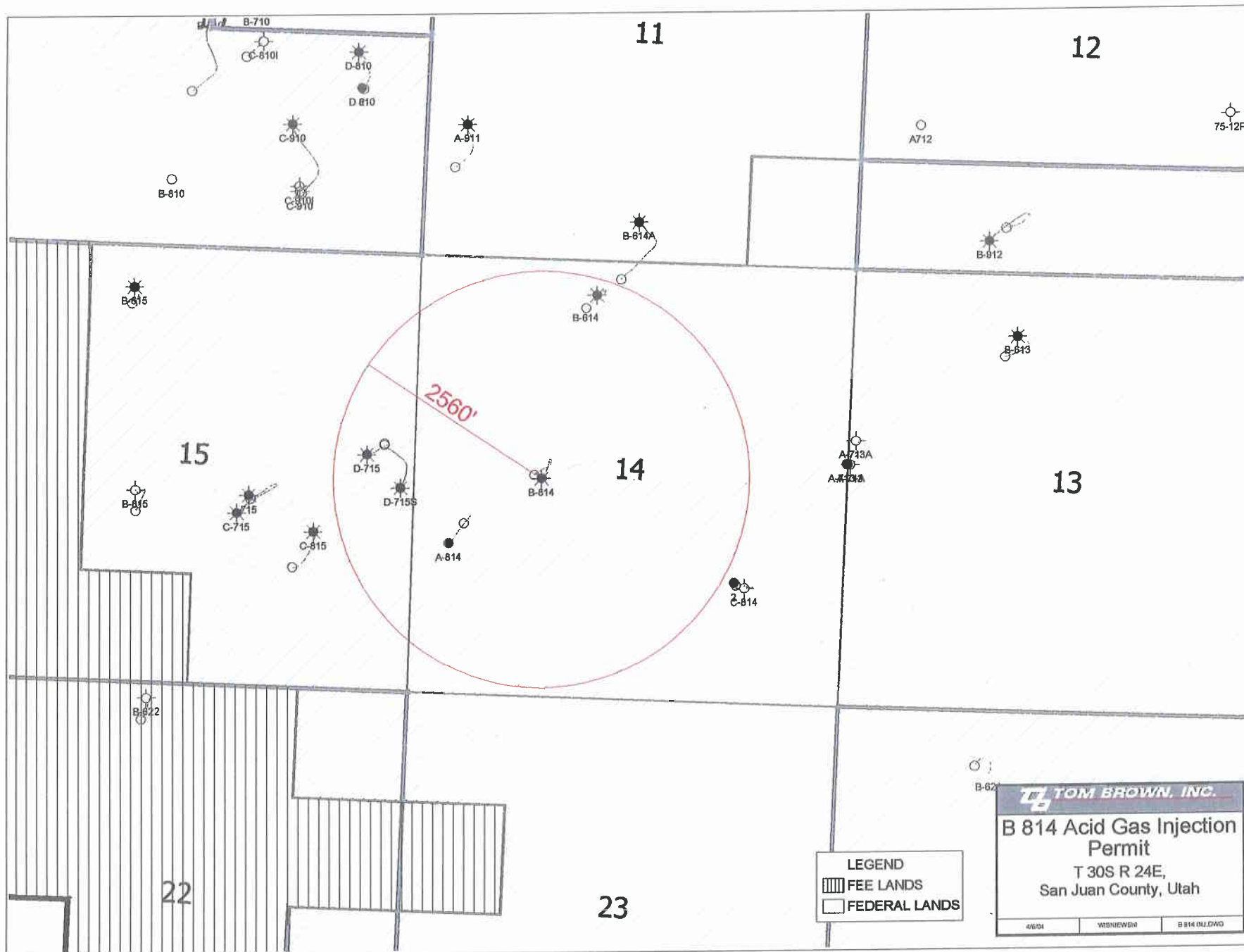
Serial	Lat	Long	Locality	Sex	Age	Date	Species
10	30S	24E	San Juan, Ut	PR		03/11/1961	McCracken
10	30S	24E	San Juan, Ut	PR		10/03/1982	McCracken
14	30S	24E	San Juan, Ut	PA			McCracken
30	44N	19W	San Miguel, Co	SI	09/07/1960	11/26/1960	Mississippian
20	44N	19W	San Miguel, Co	WO	01/18/1975	06/17/1975	Mississippian
19	44N	19W	San Miguel, Co	APD			Mississippian
13	30S	24E	San Juan, Ut	SI		05/14/1964	Mississippian
15	30S	24E	San Juan, Ut	PR	06/08/1965	08/19/1965	Mississippian
14	30S	24E	San Juan, Ut	PA			Mississippian
4	30S	24E	San Juan, Ut	SI	05/08/1971	07/01/1971	Mississippian
4	30S	24E	San Juan, Ut	SI		05/06/1982	Mississippian
10	30S	24E	San Juan, Ut	PR			Mississippian
13	30S	24E	San Juan, Ut	SI		06/06/1961	Mississippian
14	30S	24E	San Juan, Ut	PR			Mississippian
15	30S	24E	San Juan, Ut	PR	09/06/1960	03/07/1961	Mississippian
16	30N	24E	San Juan, Ut	TA		02/06/1963	Mississippian
10	30S	24E	San Juan, Ut	NCA		10/01/1988	Mississippian
14	30S	24E	San Juan, Ut	SI		09/23/1972	Mississippian
15	30S	24E	San Juan, Ut	PA			Mississippian
12	30S	24E	San Juan, Ut	PR	07/09/1960	10/24/1960	Mississippian
9	30S	24E	San Juan, Ut	SI	05/19/1962	07/13/1962	Mississippian
4	30S	24E	San Juan, Ut	WO		01/31/1963	Mississippian
15	30S	24E	San Juan, Ut	PA			Mississippian
10	30S	24E	San Juan, Ut	PR		09/08/1987	Mississippian
4	30S	24E	San Juan, Ut	PR		04/11/1965	Mississippian
16	30S	24E	San Juan, Ut	PR	04/10/1960	10/11/1960	Mississippian
16	30S	24E	San Juan, Ut	PR	08/23/1984	10/24/1984	Mississippian
10	30S	24E	San Juan, Ut	PR			Mississippian
9	30S	24E	San Juan, Ut	PR			Mississippian
21	30S	25E	San Juan, Ut	SI			Mississippian
11	30S	24E	San Juan, Ut	PR		10/18/1984	Mississippian
14	30S	24E	San Juan, Ut	PR			Mississippian
9	30S	24E	San Juan, Ut	PR	10/11/1981	04/07/1982	Mississippian
17	44N	19W	San Miguel, Co	PR	03/16/2001	06/18/2001	Mississippian
5	44N	19W	San Miguel, Co	TA		06/19/1960	Mississippian
18	44N	19W	San Miguel, Co	TA		08/03/1971	Mississippian
8	44N	19W	San Miguel, Co	APD			Mississippian
			San Juan, Ut	SI			
14	30S	24E	San Juan, Ut	SI		05/31/1960	
24	30S	24E	San Juan, Ut	AI		07/20/1960	
10	30S	24E	San Juan, Ut	PR			
16	30S	24E	San Juan, Ut	AI		12/07/1962	
10	30S	24E	San Juan, Ut	PA	06/11/2000		
			San Juan, Ut	SI			
			San Juan, Ut	SI			

ATTACHMENT NO. 9
OWNERSHIP MAP & LIST OF OWNERS

Surface, Royalty and Working Interest

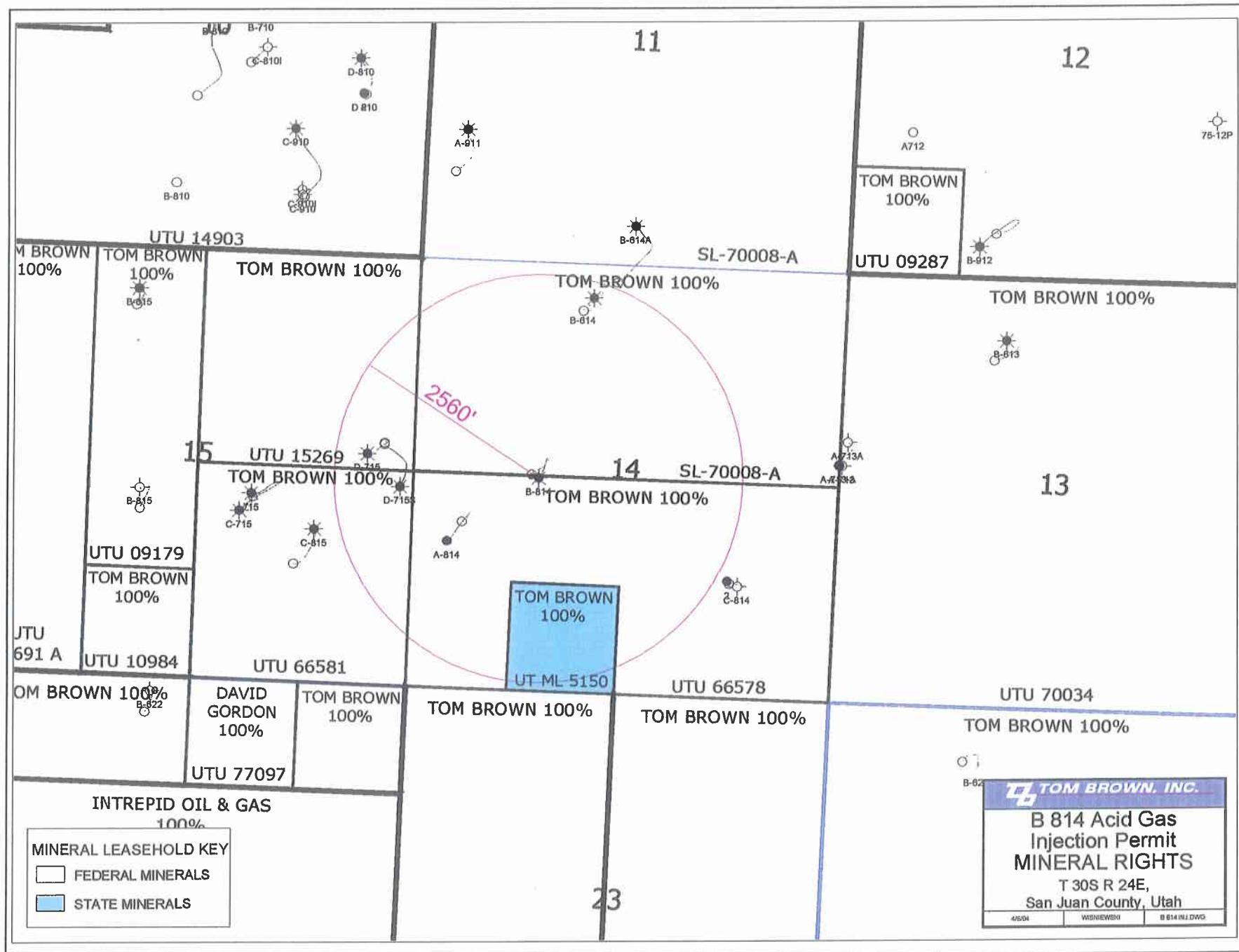
- 1) WI Ownership within Lisbon Mississippian Unit
TBI - 99.50307% WI

Chester Gordon Trust - 0.49693% WI
600 17th Street, Suite #1800 North
Denver, CO 80202
Attn: Wayne Gardenswartz, Trustee
- 2) WI Ownership within the McCracken Unit
TBI - 100% WI
- 3) Mineral Ownership
All Minerals are Federal and State of Utah.
- 4) Base Royalty Ownership
All Base Royalties are paid to the BLM (Federal) and the State of Utah.
- 5) Surface Ownership
BLM and Tom Brown



LEGEND
FEE LANDS
FEDERAL LANDS

TOM BROWN, INC.
B 814 Acid Gas Injection Permit
T 30S R 24E,
San Juan County, Utah
4/5/04 10/26/2004 B 814 BILLOW



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS
**Do not use this form for proposals to drill, or to re-enter an
abandoned well. Use Form 3160-3 (APD) for such proposals.**

5. Lease Serial No. UTU-66578

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other Instructions on page 2.

1. Type of Well

☒ Oil Well

☐ Gas Well

☒ Other *WD*

2. Name of Operator

EnCana Oil & Gas (USA) Inc.

7. If Unit or CA/Agreement, Name and/or No.

Lisbon Unit

8. Well Name and No.

Lisbon B-814

3a. Address

370 17th Street, Suite 1700, Denver, CO 80202

3b. Phone No. (include area code)

720-876-5339

9. API Well No.

43-037-30082

4. Location of Well (Footage, Sec. T., R., M., or Survey Description)

2601' FSL & 1482' FWL, Sec. 14, T30S, R24E, SLPM

10. Field and Pool or Exploratory Area

Lisbon

11. County or Parish, State

San Juan, UT

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

OF SUBMISSION

TYPE OF ACTION

☒ Notice of Intent

☐ Subsequent Report

☐ Final Abandonment Notice

☐ Acidize

☐ Alter Casing

☐ Casing Repair

☐ Change Plans

☐ Convert to Injection

☐ Deepen

☐ Reclamation

☐ New Construction

☐ Plug and Abandon

☐ Plug Back

☐ Production (start/resume)

☐ Reclamation

☐ Recomplete

☐ Temporarily Abandon

☐ Water Disposal

☐ Water Shut-Off

☐ Well Integrity

☒ Other

**Change Gas Stream
Composition**

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with the BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, A form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

EnCana Oil & Gas (USA) Inc. plans to change the gas stream composition currently being injected into the subject injection well.

EnCana's current gas stream composition is approximately 50% CO₂ and 50% H₂S and we plan to change the composition and inject approximately a 96% CO₂ and 4% H₂S gas stream.

**Approved by the
Utah Division of
Oil, Gas and Mining**

Date:

11-30-09

By:

[Signature]

COPY SENT TO OPERATOR

Date:

12.3.2009

Initials:

KS

14. I hereby certify that the foregoing is true and correct
Name (Printed/Typed)

Jevin Croteau

Title

Regulatory Analyst

Signature

[Signature]

Date

11/18/09

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

RECEIVED

NOV 23 2009

DIV. OF OIL, GAS & MINING



GARY R. HERBERT
Governor

GREGORY S. BELL
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

June 7, 2010

EnCana Oil & Gas (USA) Inc.
370 17th St, STE 1700
Denver, CO 802025632

SUBJECT: Pressure Test for Mechanical Integrity, Multiple Wells, San Juan County, Utah:

To Whom It May Concern:

The Underground Injection Control Program, which the Division of Oil, Gas and Mining (DOGM) administers in Utah, requires that all Class II injection wells demonstrate mechanical integrity. Rule R649-5-5.3 of the Oil and Gas Conservation General Rules requires that the casing-tubing annulus above the packer be pressure tested at a pressure equal to the maximum authorized injection pressure or 1,000 psi, whichever is lesser, provided that no test pressure is less than 300 psi. This test shall be performed at least every five-year period beginning October 1982. The following wells now require a current test:

Lisbon A-715	43-037-16237	
Belco St 4 (Lisbon B-816)	43-037-16244	
→ Lisbon B-814	43-037-30082	30 S 24 E 14

Please make arrangements and ready wells for testing during the week of July 19th 2010, as outlined below:

1. Operator must furnish connections, and accurate pressure gauges, hot oil truck (or other means of pressuring annulus), along with personnel to assist in opening valves, etc.
2. The casing-tubing annulus shall be filled prior to the test date to expedite testing, as each well will be required to hold pressure for a minimum of 15 minutes.
3. If mechanical difficulties or workover operations make it impossible for the well(s) to be tested on this date the test(s) may be rescheduled.
4. Company personnel should meet a DOGM representative(s) at the field office or other location as negotiated.



Page 2
June 7, 2010
EnCanna Oil & Gas (USA) Inc.

5. All bradenhead valves with exception of the tubing on the injection well(s) must be shut-in 24 hours prior to testing.

Please contact me at (435) 820-0862 to arrange a meeting time and place or to negotiate a different date, if the date(s) specified is unacceptable.

Sincerely,

A handwritten signature in black ink, appearing to read 'Bart Kettle', with a long horizontal flourish extending to the right.

Bart Kettle
Environmental Scientist

bk/dj/js

cc: Dan Jarvis, Operations Manager
Well File

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL.

1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER <u>WD</u>		5. LEASE DESIGNATION AND SERIAL NUMBER: UTU 66578
2. NAME OF OPERATOR: Patara Oil & Gas LLC		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ---
3. ADDRESS OF OPERATOR: 518 17th Street, Suite 1000 Denver CITY CO 80202-8959 ZIP		7. UNIT or CA AGREEMENT NAME: Lisbon Unit
PHONE NUMBER: 303-571-4304		8. WELL NAME and NUMBER: Lisbon B-814
4. LOCATION OF WELL FOOTAGES AT SURFACE: ±2601' FSL ±1482' FWL		9. API NUMBER: 43-037-31902 <u>43-037-30082</u>
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NE /4 SW /4 Sec. 14 T 30S R 24E		10. FIELD AND POOL, OR WILDCAT: Lisbon
COUNTY: San Juan		STATE: Utah

CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: <u>August 8, 2010</u>	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
<input type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of Work Completion:	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input checked="" type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Please be advised that Patara Oil & Gas, LLC is requesting to run a casing inspection log and perform remediation as needed on the Lisbon B-814. This well was Spud 7/8/1972. In 2004 this well was converted to an acid gas injection well. Currently the Lisbon B-814 is injecting acid gas with between 850 to 900 psig. There is zero pressure on the annulus and Patara is confident of tubing integrity. However, Patara wants to be assured of the future serviceability of this well for the Lisbon Plant operations. The process is proposed as follows:

- 1) Set a retrievable wire line plug in the "F" Nipple (below the Production Packer) at 8,459'.
- 2) Bleed the well to 0 (zero) flaring of gas.
- 3) Lubricate fluid with H₂S Scavenger chemical additives down the tubing.
- 4) MIRU (day light workover rig) and RU safety monitoring equipment and crew.
- 5) Pull 2 7/8" tubing and lay down while visually inspecting each joint.
- 6) Run a casing inspection log. Evaluate the log and perform any remediation to the casing that
- 7) Re-run 2 7/8" tubing and string back into the packer.
- 8) NU the tree.
- 9) Pull the wire line plug in the "F" Nipple below the production packer

**Approved by the
Utah Division of
Oil, Gas and Mining**

COPY SENT TO OPERATOR

Date: 8.25.2010
Initials: KS

Date: 8/24/10
By: D. J. Janni

NAME (PLEASE PRINT) <u>Christopher A. Noonan</u>	Permit Agent For: <u>Patara Oil & Gas LLC</u>
SIGNATURE <u>[Signature]</u>	TITLE <u>Patara Oil & Gas LLC</u>
	DATE <u>August 5, 2010</u>

(This space for State use only)

**Federal Approval of this
Action is Necessary**

**RECEIVED
AUG 18 2010**

DIV. OF OIL, GAS & MINING

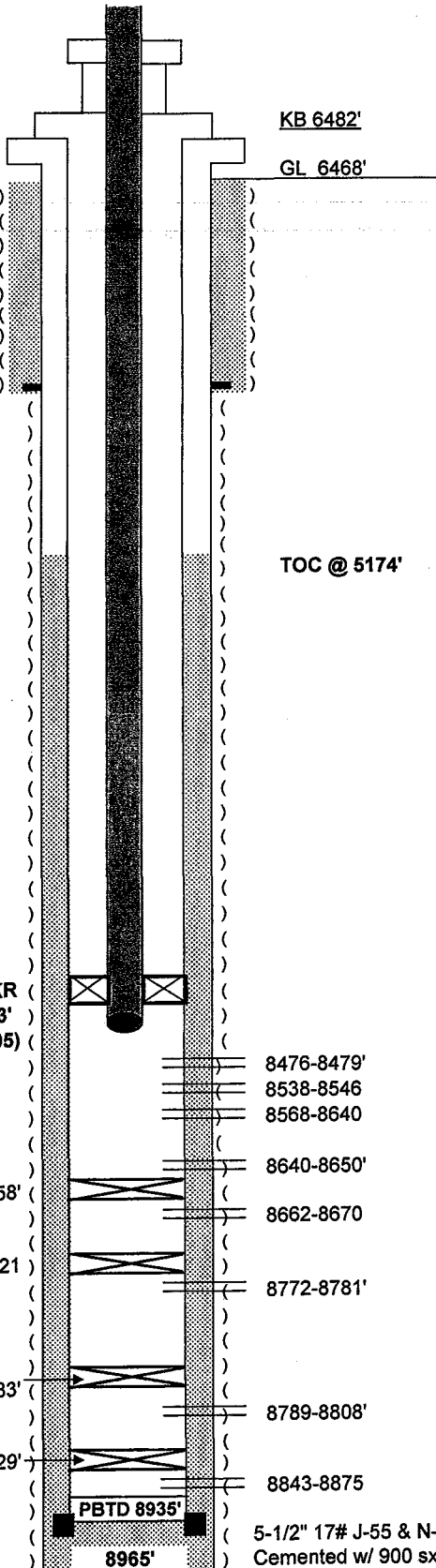
WELLBORE DIAGRAM

Surface Loc: 2601' FSL & 1482' FWL, Sec. 14

Operator:	Tom Brown, Inc.
Well Name:	Lisbon B-814
Lease Number:	8910079759
Location:	NESW Sec. 14-T30S-R24E
Field:	Lisbon
County, State:	San Juan County, UT
API Number:	43-037-30082
Diagram Date:	3/23/2004 jw
	Rev 8/3/05 jw

FORMATIONS

Homaker Trail	3162
Ismay	4040
Paradox Salt	4386
Base Salt	8350
Mississippian	8470
Ouray	8916



Well History

Spud Date: 7/8/1972
 TD Reached: 8/29/1972
 Completion Date: 10/13/1972

2/25/05 Tubing Detail:

Baker Model D 40-26 ATSA PKR
 1 jt 2-7/8" L-80 TK-7 tbg
 2.25 profile F-nipple(9% chrome)
 272 jts 2-7/8 L-80 TK-7 tbg
 5-2-7/8" L-80 TK-7 subs (3 @ 6', 2 @ 4')

	8476-8479'	5/1991: Perf'd w/4 spf, acidize w/4300 gal 15% HCL SWIC acid
	8538-8546	
	8568-8640	
	8640-8650'	5/1991: Perf'd w/4 spf, acidize w/500 gal 15% HCL
Cmt retainer @ 8658'	8662-8670	8/1982: Perf'd w/4 spf, acidize w/2000 gals 28 HCL Sqzd w/150 sx "G" cmt
Cmt retainer @ 8721'	8772-8781'	9/1972: Perf'd w/ 2 spf. Acdz w/500 gals 28% HCL acid Sqzd w/150 sx cmt
Cmt retainer @ 8783'	8789-8808'	9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL Sqz'd perms w/185 sx cmt
Cmt retainer @ 8829'	8843-8875	9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL Sqz'd perms w/200 sx cmt
PBD 8935'		
8965'		5-1/2" 17# J-55 & N-80 csg @ 9450'. Cemented w/ 900 sx Halcolite; f/b 150 sx C.

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL I

1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER <u>WD</u>		5. LEASE DESIGNATION AND SERIAL NUMBER: UTU 66578
2. NAME OF OPERATOR: Patara Oil & Gas LLC		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ---
3. ADDRESS OF OPERATOR: 518 17th Street, Suite 1000 Denver CITY CO 80202-8959 STATE ZIP		7. UNIT or CA AGREEMENT NAME: Lisbon Unit
4. LOCATION OF WELL FOOTAGES AT SURFACE: <u>±2601' FSL</u> <u>±1482' FWL</u> QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: <u>NE 1/4 SW 1/4 Sec. 14 T 30S R 24E</u> COUNTY: <u>San Juan</u> STATE: <u>Utah</u>		8. WELL NAME and NUMBER: Lisbon B-814
PHONE NUMBER: 303-571-4304		9. API NUMBER: <u>48-007-81902 43-037-3082</u>
		10. FIELD AND POOL, OR WILDCAT: Lisbon

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA			
TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: <u>August 8, 2010</u>	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
<input type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of Work Completion:	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input checked="" type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Please be advised that Patara Oil & Gas, LLC is requesting to run a casing inspection log and perform remediation as needed on the Lisbon B-814. This well was Spud 7/8/1972. In 2004 this well was converted to an acid gas injection well. Currently the Lisbon B-814 is injecting acid gas with between 850 to 900 psig. There is zero pressure on the annulus and Patara is confident of tubing integrity. However, Patara wants to be assured of the future serviceability of this well for the Lisbon Plant operations. The process is proposed as follows:

- 1) Set a retrievable wire line plug in the "F" Nipple (below the Production Packer) at 8,459'.
- 2) Bleed the well to 0 (zero) flaring of gas.
- 3) Lubricate fluid with H₂S Scavenger chemical additives down the tubing.
- 4) MIRU (day light workover rig) and RU safety monitoring equipment and crew.
- 5) Pull 2 7/8" tubing and lay down while visually inspecting each joint.
- 6) Run a casing inspection log. Evaluate the log and perform any remediation to the casing that
- 7) Re-run 2 7/8" tubing and string back into the packer.
- 8) NU the tree.
- 9) Pull the wire line plug in the "F" Nipple below the production packer

Approved by the
Utah Division of
Oil, Gas and Mining

COPY SENT TO OPERATOR

Date: 8.25.2010
Initials: KS

Date: 8/24/10
By: D. Janni

NAME (PLEASE PRINT) <u>Christopher A. Noonan</u>	Permit Agent For: <u>Patara Oil & Gas LLC</u>
SIGNATURE <u>[Signature]</u>	DATE <u>August 5, 2010</u>

(This space for State use only)

(5/2000)

(See Instructions on Reverse Side)

Federal Approval of this
Action is Necessary

RECEIVED

AUG 18 2010

DIV. OF OIL, GAS & MINING

WELLBORE DIAGRAM

Surface Loc: 2601' FSL & 1482' FWL, Sec. 14

Operator:	Tom Brown, Inc.
Well Name:	Lisbon B-814
Lease Number:	8910079759
Location:	NESW Sec. 14-T30S-R24E
Field:	Lisbon
County, State:	San Juan County, UT
API Number:	43-037-30082
Diagram Date:	3/23/2004 jw
	Rev 8/3/05 jw

FORMATIONS

Homaker Trail	3162
Ismay	4040
Paradox Salt	4386
Base Salt	8350
Mississippian	8470
Ouray	8916

KB 6482'

GL 6468'

Well History

Spud Date:	7/8/1972
TD Reached:	8/29/1972
Completion Date:	10/13/1972

9-5/8" 43.5# N-80 csg set @
1003'. Cmt'd w/ 450 sx 50/50
Poz f/b 150 sx "C" - cmt to surf
(set 7/13/72)

TOC @ 5174'

Baker Model D 40-26 ATSA PKR
set @ 8413'
(2/24/05)

2/25/05 Tubing Detail:

Baker Model D 40-26 ATSA PKR
1 jt 2-7/8" L-80 TK-7 tbg
2.25 profile F-nipple(9% chrome)
272 jts 2-7/8 L-80 TK-7 tbg
5-2-7/8" L-80 TK-7 subs (3 @ 6', 2 @ 4')

	8476-8479'
	8538-8546
	8568-8640
	8640-8650'
Cmt retainer @ 8658'	8662-8670
	8772-8781'
Cmt retainer @ 8721	
	8789-8808'
Cmt retainer @ 8783'	
Cmt retainer @ 8829'	8843-8875
	PBTD 8935'

5/1991: Perf'd w/4 spf, acidize w/4300 gal 15% HCL SWIC acid

5/1991: Perf'd w/4 spf, acidize w/500 gal 15% HCL

8/1982: Perf'd w/4 spf, acidize w/2000 gals 28 HCL
Sqzd w/150 sx "G" cmt

9/1972: Perf'd w/ 2 spf. Acdz w/500 gals 28% HCL acid
Sqzd w/150 sx cmt

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
Sqz'd perms w/185 sx cmt

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
Sqz'd perms w/200 sx cmt

5-1/2" 17# J-55 & N-80 csg @ 9450'.
Cemented w/ 900 sx Halcolite; f/b 150 sx C.

8965'

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET (for state use only)

ROUTING

CDW

X - Change of Operator (Well Sold)

Operator Name Change/Merger

The operator of the well(s) listed below has changed, effective:

5/14/2010

FROM: (Old Operator):

N2175-EnCana Oil & Gas (USA) Inc.

370 17th Street, Suite 1700

Denver, CO 80202

Phone: 1 (303) 623-2300

TO: (New Operator):

N3670-Patara Oil & Gas, LLC

333 Clay Street, Suite 3960

Houston, TX 77002

Phone: 1 (713) 357-7171

CA No.

Unit:

LISBON

WELL NAME	SEC	TWN	RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
SEE ATTACHED								

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

- (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 5/11/2010
- (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 5/11/2010
- The new company was checked on the **Department of Commerce, Division of Corporations Database** on: 5/11/2010
- Is the new operator registered in the State of Utah: Business Number: 7655540-0161
- (R649-9-2) Waste Management Plan has been received on: * * requested 9/27/10
- Inspections of LA PA state/fee well sites complete on: * * requested 9/27/10
- Reports current for Production/Disposition & Sundries on: ok
- Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BLM not yet BIA
- Federal and Indian Units:**
The BLM or BIA has approved the successor of unit operator for wells listed on: 6/28/2010 & 9/2/2010
- Federal and Indian Communization Agreements ("CA"):**
The BLM or BIA has approved the operator for all wells listed within a CA on: n/a
- Underground Injection Control ("UIC")** Division has approved UIC Form 5 Transfer of Authority to Inject, for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: 6/29/2010
Lisbon B-816 only

DATA ENTRY:

- Changes entered in the **Oil and Gas Database** on: 9/14/2010
- Changes have been entered on the **Monthly Operator Change Spread Sheet** on: 9/14/2010
- Bond information entered in RBDMS on: 9/14/2010
- Fee/State wells attached to bond in RBDMS on: 9/14/2010
- Injection Projects to new operator in RBDMS on: 9/14/2010
- Receipt of Acceptance of Drilling Procedures for APD/New on: 5/11/2010

BOND VERIFICATION:

- Federal well(s) covered by Bond Number: UTB000428
- Indian well(s) covered by Bond Number: n/a
- (R649-3-1) The **NEW** operator of any state/fee well(s) listed covered by Bond Number RLB0013207 & B006008
- The **FORMER** operator has requested a release of liability from their bond on: not yet

LEASE INTEREST OWNER NOTIFICATION:

- (R649-2-10) The **NEW** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: n/a

COMMENTS:

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

1. TYPE OF WELL

OIL WELL ☒

GAS WELL ☒

OTHER

2. NAME OF OPERATOR:

ENCANA OIL & GAS (USA) INC.

N2175

3. ADDRESS OF OPERATOR:

370 17th Street, Suite 1700

CITY

Denver

STATE

CO

ZIP

80202

PHONE NUMBER:

(303) 623-2300

4. LOCATION OF WELL

FOOTAGES AT SURFACE: See Attached List

COUNTY:

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:

STATE:

UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON	
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input checked="" type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR	
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE	
<input checked="" type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: _____	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL	
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF	
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____	
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION		

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

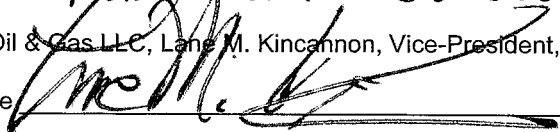
Effective May 4, 2010 Patara Oil & Gas LLC, 333 Clay Street, Suite 3960, Houston, TX 77002, will take over completions and operations and is designated as agent operator for the subject wells on the attached list.

Bond coverage for all activities will be covered by Patara's BLM Statewide Oil & Gas Bond No. UTB000428 and UDOGM Bond No. Pending. **RLB0013207 + B006008**

Patara Oil & Gas LLC, Lane M. Kincannon, Vice-President, Land & Business Development

N3670

Signature

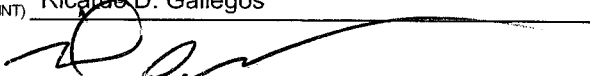


Date 5/4/2010

NAME (PLEASE PRINT) Ricardo D. Gallegos

TITLE Attorney-in-Fact

SIGNATURE



DATE 5/4/2010

(This space for State use only)

APPROVED 9/14/2010

Earlene Russell
Division of Oil, Gas and Mining

Earlene Russell, Engineering Technician

(See Instructions on Reverse Side)

RECEIVED

May 11 2010 ER

DIV. OF OIL, GAS & MINING

ENCANA O-G (N2175) to PATARA O-G (N3670)
effective May 4, 2010
LISBON UNIT

well_name	sec	twp	rng	api	entity	lease	well	stat	C
LISBON D-616	16	300S	240E	4303715049	8123	State	OW	S	
LISBON B-615	15	300S	240E	4303715123	8123	Federal	OW	P	
LISBON B912	12	300S	240E	4303715769	8123	Federal	OW	S	
LISBON A-715	15	300S	240E	4303716237	8123	Federal	WD	I	
LISBON B-613	13	300S	240E	4303716240	8123	Federal	OW	S	
LISBON B-616	16	300S	240E	4303716242	8123	State	OW	S	
BELCO ST 4 (LISBON B-816)	16	300S	240E	4303716244	8123	State	WD	A	
LISBON C-69	09	300S	240E	4303716245	8123	Federal	OW	S	
LISBON C-94	04	300S	240E	4303716247	8123	Federal	OW	S	
LISBON UNIT D-84	04	300S	240E	4303716250	8123	Federal	OW	P	
LISBON D-89	09	300S	240E	4303716251	8123	Federal	OW	S	
NW LISBON USA A-2 (D-810)	10	300S	240E	4303716471	8123	Federal	GW	P	
LISBON B-84	04	300S	240E	4303730054	8123	Federal	OW	S	
LISBON B-814	14	300S	240E	4303730082	8123	Federal	WD	A	
LISBON C-99	09	300S	240E	4303730693	8123	Federal	OW	S	
LISBON B-94	04	300S	240E	4303730695	8123	Federal	OW	S	
LISBON UNIT A-911	11	300S	240E	4303731014	8123	Federal	GW	P	
LISBON UNIT D-716	16	300S	240E	4303731034	8123	State	OW	S	
LISBON C-910	10	300S	240E	4303731323	8123	Federal	OW	S	
LISBON B-614A	14	300S	240E	4303731351	8123	Federal	OW	S	
LISBON B-810	10	300S	240E	4303731433	8123	Federal	OW	P	

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

UIC FORM 5

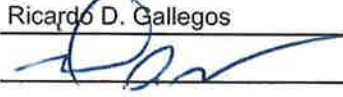
TRANSFER OF AUTHORITY TO INJECT

Well Name and Number Lisbon B-814	API Number 4303730082
Location of Well Footage : 2601' FSL & 1482' FWL County : San Juan	Field or Unit Name Lisbon
QQ, Section, Township, Range: NESW 14 30S 24E State : UTAH	Lease Designation and Number 8910076759

EFFECTIVE DATE OF TRANSFER: 5/4/2010


CURRENT OPERATOR

Company: ENCANA OIL & GAS (USA) INC. N2175
Address: 370 17th Street, Suite 1700
city Denver state CO zip 80202
Phone: (303) 623-2300
Comments:

Name: Ricardo D. Gallegos
Signature: 
Title: Attorney-in-Fact
Date: 5/4/2010

NEW OPERATOR

Company: Patara Oil & Gas LLC N3670
Address: 333 Clay Street, Suite 3960
city Houston state TX zip 77002
Phone: (713) 357-7171
Comments:

Name: Lane M. Kincannon
Signature: 
Title: Vice-President, Land & Business Development
Date: 5/4/2010

(This space for State use only)

Transfer approved by: 
Title: vic president

Approval Date: 5/5/10

Comments:

RECEIVED
MAY 11 2010
DIV. OF OIL, GAS & MINING



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Utah State Office
P.O. Box 45155
Salt Lake City, UT 84145-0155
<http://www.blm.gov/ut/st/en.html>



IN REPLY REFER TO
3180
UT-922

June 28, 2010

David M. Laramie
Patara Oil & Gas, LLC
621 17th Street, Suite 1345
Denver, CO 80293

Re: Successor Operator
Lisbon Unit, UTU630370
San Juan County, Utah

Dear Mr. Laramie:

On June 25, 2010, we received an indenture dated May 4, 2010, whereby EnCana Oil & Gas (USA), Inc. resigned as Unit Operator and Patara Oil & Gas, LLC was designated as Successor Unit Operator for the Lisbon Unit, San Juan County, Utah. The indenture was executed by both parties and the signatory parties (working interest owners) have complied with Sections 5 and 6 of the unit agreement.

The instrument is hereby approved effective June 28, 2010. In approving this designation, the Authorized Officer neither warrants nor certifies that the designated party has obtained all required approval that would entitle it to conduct operations under the Lisbon Unit Agreement.

Your statewide oil and gas BLM Bond No. UTB000428 will be used to cover unit operations.

It is requested that you notify all interested parties of the change in unit operator. Copies of the approved instruments are being distributed to the appropriate Federal offices, with one copy returned herewith.

If you have any questions, contact Leslie Wilcken of this office at (801) 539-4112.

Sincerely,

/s/ Roger L. Bankert

Roger L. Bankert
Chief, Branch of Minerals

RECEIVED

JUL 06 2010

DIV. OF OIL, GAS & MINING

Enclosure

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

1. TYPE OF WELL OIL WELL ☐ GAS WELL ☐ OTHER Acid gas injection well

2. NAME OF OPERATOR:
Patara Oil & Gas LLC

3. ADDRESS OF OPERATOR:
600 17th St., Suite 1900S CITY Denver STATE CO ZIP 80202

PHONE NUMBER:
(303) 563-5369

4. LOCATION OF WELL

FOOTAGES AT SURFACE: 2601 FSL & 1482 FWL

COUNTY: San Juan

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NENW 14 30S 24E

STATE: UTAH

5. LEASE DESIGNATION AND SERIAL NUMBER:
8910079759

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT or CA AGREEMENT NAME:
Lisbon Unit

8. WELL NAME and NUMBER:
Lisbon B-814

9. API NUMBER:
4303730082

10. FIELD AND POOL, OR WILDCAT:
Lisbon-Mississippian

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input checked="" type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
<input checked="" type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: <u>10/4/2010</u>	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input checked="" type="checkbox"/> OTHER: <u>Perform MIT</u>
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Attached please find a workover report and a copy of the final pressure test chart for the MIT on the Lisbon B-814 well.

Patara Oil & Gas ran a casing inspection log, repaired the casing leak by circulating cement to surface & performing a squeeze beneath a retainer, ran a new string of 2 3/8" coated tubing, then pressure tested the annulus to 1100 psi for 30 minutes while recording the test on a chart recorder.

The Lisbon B-814 has been returned to active injection of acid gas from the Lisbon Plant.

Accepted by the
Utah Division of
Oil, Gas and Mining

Date: 10-26-10
By: [Signature]

COPY SENT TO OPERATOR

Date: 11.8.2010
Initials: KS

NAME (PLEASE PRINT) John B. Warren

TITLE Production Manager

SIGNATURE [Signature]

DATE 10/8/2010

(This space for State use only)

RECEIVED

OCT 13 2010

DIV. OF OIL, GAS & MINING

Patara Oil and Gas

Daily Completion / Workover Report

AFE #					Report Date	17-Aug-10	
Well Name	Lisbon B 814 AGI				Supervisor	REX THOMPSON	
Type Work		Completion				R&M	
County		San Juan			State	Utah	
Section	14	Township	30S		Range	24 E	
Daily Cost	\$5,200	\$0	Cum Cost			\$5,200	

Status at Report Time:

Well on injection

Previous 24 Hour Activity Detail:

Road to location. Serviced wellhead and tested hanger. Hanger test ok. RU pump to casing. Pumped 10 bbls @ 1/4 to 1/2 bbl/min. Pressured casing to 1000 psi. SD. Pressure fell off to 150 psi. Pumped 5 bbls @ 1/4 to 1/2 bbl/min. Pressured casing to 800 psi. Observed 300 psi on bradenhead. SD. Pressure fell off to 150 psi. on both casing and bradenhead. Pumped 5 bbls @ 3/4 to 1 BPM. Pressured casing to 1100 psi. 650 psi on bradenhead. SD. Pressure fell off to 150 psi on both casing and bradenhead. RD equipment. Test complete.
Used fw packer fluid for test.

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary
Location	0	0	TD
Completion Unit	0	0	PBTD
Snubbing Services	0	0	Perforations
Bits		0	
Rental	750	750	
Water	750	750	
Cement		0	
Cased Hole Logging		0	
Perforating		0	
Stimulaton		0	
Contract Labor	2,900	2,900	Item
N2, Air Services	0	0	KB
Slickline		0	
Coil Tbg Services		0	
Flowback Services		0	
Supervision	0	0	
Transportation	800	800	
Miscellaneous		0	
Tubing		0	End of Tbg
Rods		0	
Wellhead	0	0	Packer Depth
Tank Battery & Separator		0	
Contingency		0	End of Tailpipe
Total	\$5,200	\$5,200	

Patara Oil and Gas

Daily Completion / Workover Report

AFE #	0	Report Date	22-Sep-10	
Well Name	Lisbon B 814 AGI	Supervisor	REX THOMPSON	
Type Work	COMPLETION			
County	San Juan	State	Utah	
Section	14	Township	30S	Range 24 E
Daily Cost	\$14,700	Cum Cost	\$19,900	

Status at Report Time:

Ready to pump down tbg and set plug in F nipple

Previous 24 Hour Activity Detail:

Road rig and equipment to location. Spotted equipment and rig. Reviewed blowdown and purge procedure with plant personnel. Spotted and rigged up H2S monitors and wind socks. Hooked piping to flowback manifold, separator and flare stack. Reviewed safety and job procedures with H2S safety hand and rig crew. Will bobtail water to tanks and proceed with operations in AM.

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary
Location	0	0	TD
Completion Unit	4,500	4,500	PBTD
Snubbing Services		0	Perforations
Bits		0	
Rental	1,500	2,250	
Water		750	
Cement		0	
Cased Hole Logging		0	
Perforating		0	
Stimulaton		0	
Contract Labor	1,200	4,100	Item
N2, Air Services		0	KB
Slickline		0	
Coil Tbg Services		0	
Flowback Services		0	
Supervision	1,000	1,000	
Transportation	6,500	7,300	
Miscellaneous		0	
Tubing		0	End of Tbg
Rods		0	
Wellhead		0	Packer Depth
Tank Battery & Separator		0	
Contingency		0	End of Tailpipe
Total	\$14,700	\$19,900	

Patara Oil and Gas

Daily Completion / Workover Report

AFE #	0	Report Date	23-Sep-10	
Well Name	Lisbon B 814 AGI	Supervisor	REX THOMPSON	
Type Work		Completion		
County	San Juan	State	Utah	
Section	14 Township	Range	30S 24 E	
Daily Cost	\$11,100	Cum Cost	\$31,000	

Status at Report Time:

Looking for x-over to NU BOP

Previous 24 Hour Activity Detail:

Blew down and purged facilities. Hooked up pump. 850 psi SITP. 0 psi SICP. Pumped 150 bbls fw down tbg. Well on vacuum. Pumped 5 bbls fw through flowline to purge. Pumped 2 bbls 15% hcl down tbg followed by 150 bbls fw. Removed and blind flanged flowline. RU Phoenix WL. RIH w/1.90 gauge ring. Found fluid @ 1900'. Tagged @ 8401'. Spudded down to 8410'. Sticky. POH w/GR. RIH w/1.70 gauge ring. FL @ 2600'. Run to 8500'. No tag. POH. RIH w/1.90 gauge ring. FL @ 3200'. Tagged @ 8410'. Spudded to solid tag @ 8416'. POH. RIH w/plug. FL @ 3400'. Set plug in F nipple. Sheared off and POH. Hooked up pump. Pumped 32 bbls down tbg. Well on hard vacuum. 22 bbls should have filled tbg from 3500'. SD pump. RIH w/EQ probe. FL @ 1900'. Equalized plug. POH. RIH w/retrieving tool. Latched and pulled plug. Plug shows evidence of being seated in F nipple and seals are good. Plug was evidently set good. Probable leak between F nipple and bottom of packer. RD Phoenix. RU PU. Well dead. ND WH. Discovered 3000# tbg spool has been cut for RX45 ring gasket rather than normal R45. Both tbg spool flange and tree flange stamped R45. Looking for X-over ring or spool. NU WH. Will continue to look for X-over and NU in AM. SD for night.

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary
Location		0	TD
Completion Unit	5,200	9,700	PBTD
Snubbing Services		0	Perforations
Bits		0	
Rental		2,250	
Water	2,500	3,250	
Cement		0	
Cased Hole Logging		0	
Perforating		0	
Stimulation		0	
Contract Labor	2,400	6,500	Item
N2, Air Services		0	KB
Slickline		0	
Coil Tbg Services		0	
Flowback Services		0	
Supervision	1,000	2,000	
Transportation		7,300	
Miscellaneous		0	
Tubing		0	End of Tbg
Rods		0	
Wellhead		0	Packer Depth
Tank Battery & Separator		0	
Contingency		0	End of Tailpipe
Total	\$11,100	\$31,000	

Patara Oil and Gas

Daily Completion / Workover Report

AFE #	0	Report Date	24-Sep-10	
Well Name	Lisbon B 814 AGI	Supervisor	REX THOMPSON	
Type Work		Completion		
County	San Juan	State	Utah	
Section	14 Township	Range	30S 24 E	
Daily Cost	\$9,800	Cum Cost	\$40,800	

Status at Report Time:

Ready to POH w/tbg.

Previous 24 Hour Activity Detail:

500 psi SITP, 0 psi SICP. Pumped 50 bbls water down tbg. ND WH. NU BOP stack w/R45 ring. Hooked up pump. Tested BOP to 250 psi for 15 min. Test ok. Tested to 3000 psi for 30 min. Test ok. Decision made to set plug in 2.25 F nipple and perf tbg to circulate diesel out of casing. Wait on slickline and tools from Farmington. RU Phoenix WL. RIH w/2.347 guge ring. Set down @ 982'. Jarred down through every collar to 1103'. POH jarring up through every collar. RIH w/setting tool.(2.24 OD) to 8418'. Possibly top of packer. POH Hit a few spots going down but didn't have to jar. Attempted to run plug. Set down @ 1475'. Jarred down to 2260'. Sheared off while jarring. POH. RIH w/retrieving tool. Latched plug. Worked plug up to 1473' and sheared tool. POH. Pumped 8 bbls water in tbg. RIH w/EQ spear to 6200' Did not find plug. POH. Pumped 30 bbls to see if plug seated in nipple. Not seated. RIH w/EQ spear. Tagged plug @ 8390'. Punched hole in plug disc. POH w spear. RD Phoenix. SD for night. Will POH w/tbg in AM

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary
Location		0	TD
Completion Unit	5,400	15,100	PBTD
Snubbing Services		0	Perforations
Bits		0	
Rental		2,250	
Water		3,250	
Cement		0	
Cased Hole Logging		0	
Perforating		0	
Stimulaton		0	
Contract Labor	900	7,400	Tubing Detail
N2, Air Services		0	Item
Slickline	2,500	2,500	KB
Coil Tbg Services		0	
Flowback Services		0	
Supervision	1,000	3,000	
Transportation		7,300	
Miscellaneous		0	
Tubing		0	End of Tbg
Rods		0	
Wellhead		0	Packer Depth
Tank Battery & Separator		0	
Contingency		0	End of Tailpipe
Total	\$9,800	\$40,800	

Patara Oil and Gas

Daily Completion / Workover Report

AFE #	0	Report Date	25-Sep-10	
Well Name	Lisbon B 814 AGI	Supervisor	REX THOMPSON	
Type Work		Completion		
County	San Juan	State	Utah	
Section	14	Township	30S	Range 24
Daily Cost	\$22,900	Cum Cost	\$63,700	

Status at Report Time:

Testing casing.

Previous 24 Hour Activity Detail:

0 psi SITP. Pumped 20 bbls water down tbg. Picked up on tbg and stung out of packer. Laid down hanger and 5 tbg subs. POH w/272 jts 2-7/8 tbg, 2.25 F nipple w/plug, 1 jt tbg and seal assembly. Seal assembly and F nipple look good. Seals gone off of plug in F nipple. Found some barrier rings in tbg collars damaged. Some hard scale in a few collars. Pumped 89 bbls water in casing while POH. RU BWVL. RIH w/4.685 gauge ring and junk basket. Tagged packer @ 8413'. POH. RIH w/WRP. Set @ 8381'. POH. RIH w/bailer. Dumped 2 sx sand on plug. POH RD BWVL. RIH w/packer to 2000'. Filled hole. Pumped down tbg into leak @ 1/2 bpm and 800 psi. Pressured casing to 1100 psi. Lost 160 psi in 10 min. Release packer. RIH to 4000'. Pumped down tbg. Pressure tested casing to 1100 psi for 10 min. Test ok. Opened by pass on packer. SD for night.

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary
Location		0	TD
Completion Unit	5,200	20,300	PBTD
Snubbing Services		0	Perforations
Bits		0	
Rental	2,500	4,750	
Water	1,200	4,450	
Cement		0	
Cased Hole Logging	13,000	13,000	
Perforating		0	
Stimulation		0	
Contract Labor		7,400	
N2, Air Services		0	
Slickline		2,500	
Coil Tbg Services		0	
Flowback Services		0	
Supervision	1,000	4,000	
Transportation		7,300	
Miscellaneous		0	
Tubing		0	End of Tbg
Rods		0	
Wellhead		0	Packer Depth
Tank Battery & Separator		0	
Contingency		0	End of Tailpipe
Total	\$22,900	\$63,700	

Patara Oil and Gas

Daily Completion / Workover Report

AFE #	0	Report Date	26-Sep-10
Well Name	Lisbon B 814 AGI	Supervisor	REX THOMPSON
Type Work		Completion	
County	San Juan	State	Utah
Section	14 Township	Range	30S 24 E
Daily Cost	\$28,200	Cum Cost	\$91,900

Status at Report Time:

Continue testing casing

Previous 24 Hour Activity Detail:

Released packer. POH and reset @ 3000'. Pressured down tbg to 1100 psi. Test ok. Pumped down casing @ 1 bpm and 450 psi into leak. POH w/tbg and packer. RU BWWL. RIH w/40 finger caliper. Tagged sand @ 8375'. Run log to surface. RD BWWL. Raw data on log indicates possible problem at 2850'. SD for night. Will continue testing casing in AM.

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary		
Location		0	TD		
Completion Unit	5,200	25,500	PBTD		
Snubbing Services		0	Perforations		
Bits		0			
Rental	2,000	6,750			
Water		4,450			
Cement		0			
Cased Hole Logging	20,000	33,000			
Perforating		0			
Stimulaton		0			
Contract Labor		7,400			
N2, Air Services		0			
Slickline		2,500			
Coil Tbg Services		0			
Flowback Services		0			
Supervision	1,000	5,000			
Transportation		7,300			
Miscellaneous		0			
Tubing		0			
Rods		0			
Wellhead		0			
Tank Battery & Separator		0			
Contingency		0			
Total	\$28,200	\$91,900			

Tubing Detail

Item	Length (ft)	Depth (ft)
KB		

End of Tbg

Packer Depth

End of Tailpipe

Patara Oil and Gas

Daily Completion / Workover Report

AFE #	0			Report Date	27-Sep-10
Well Name	Lisbon B 814 AGI			Supervisor	REX THOMPSON
Type Work				Completion	
County	San Juan		State	Utah	
Section	14	Township	30S	Range	24 E
Daily Cost	\$13,800	Cum Cost	\$105,700		

Status at Report Time:

Prep to squeeze.

Previous 24 Hour Activity Detail:

RIH w/tbg and packer. Set packer @ 2954'. Tested down tbg to 1100 psi. Test ok. Pumped down casing into leak and Bradenhead had slight blow. Released packer. Reset @ 2839'. Tested casing above packer to 1100 psi for 30 min. Test ok. Pumped down tbg into leak. Bradenhead started to circulate after 10 bbls. Circulated total of 280 bbls @ 2.5 bpm. Returns started to clean up after 240 bbls. SD pump. RU Lone Wolf WL. RIH w/dump bailer. Attempted to dump sand on WRP. Bailer did not dump. POH. Emptied bailer. SD for night. Will dump sand, set retainer and RIH w/tbg and stinger in AM. SD for night.

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary		
Location		0	TD		
Completion Unit	5,600	31,100	PBTD		
Snubbing Services		0	Perforations		
Bits		0			
Rental	2,500	9,250			
Water	2,500	6,950			
Cement		0			
Cased Hole Logging		33,000			
Perforating		0			
Stimulaton		0			
Contract Labor	2,200	9,600	Item	Length (ft)	Depth (ft)
N2, Air Services		0	KB		
Slickline		2,500			
Coil Tbg Services		0			
Flowback Services		0			
Supervision	1,000	6,000			
Transportation		7,300			
Miscellaneous		0			
Tubing		0	End of Tbg		
Rods		0			
Wellhead		0	Packer Depth		
Tank Battery & Separator		0			
Contingency		0	End of Tailpipe		
Total	\$13,800	\$105,700			

Patara Oil and Gas

Daily Completion / Workover Report

AFE #	0	Report Date	28-Sep-10	
Well Name	Lisbon B 814 AGI	Supervisor	REX THOMPSON	
Type Work		Completion		
County	San Juan	State	Utah	
Section	14	Township	30S	Range 24 E
Daily Cost	\$15,400	Cum Cost	\$121,100	

Status at Report Time:

Ready to cement

Previous 24 Hour Activity Detail:

RU Lone Wolf WL. RIH w/dump bailer and dumped 2 sx sand on WRP. POH and laid down bailer. RIH w/Halco CCR. Set @ 2712'. POH w/setting tool. RD Lone Wolf. Made up stinger. RIH and tagged CCR. Spaced out w/3-6' and 1-4' tbg subs. Established circ up casing for 5 bbls. Stung in to CCR. Pressure tested casing and CCR to 1100 psi for 5 min. Test ok. Pumped through CCR and circulated Braden Head @ 1.25 BPM and 500 psi. SD pump. SD for day. Ready to cement.

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary
Location		0	TD
Completion Unit	4,500	35,600	PBTD
Snubbing Services		0	Perforations
Bits		0	
Rental		9,250	
Water		6,950	
Cement	4,500	4,500	
Cased Hole Logging	3,900	36,900	
Perforating		0	
Stimulaton		0	
Contract Labor	1,500	11,100	Item
N2, Air Services		0	KB
Slickline		2,500	
Coil Tbg Services		0	
Flowback Services		0	
Supervision	1,000	7,000	
Transportation		7,300	
Miscellaneous		0	
Tubing		0	End of Tbg
Rods		0	
Wellhead		0	Packer Depth
Tank Battery & Separator		0	
Contingency		0	End of Tailpipe
Total	\$15,400	\$121,100	

Patara Oil and Gas

Daily Completion / Workover Report

AFE #	0	Report Date	29-Sep-10	
Well Name	Lisbon B 814 AGI	Supervisor	REX THOMPSON	
Type Work		Completion		
County	San Juan	State	Utah	
Section	14	Township	30S	Range 24 E
Daily Cost	\$52,300	Cum Cost	\$173,400	

Status at Report Time:
WOC

Previous 24 Hour Activity Detail:

Road BJ to location. RU BJ. Safety meeting. Pressured casing to 1000 psi. Established circulation through Braden head @ 1.7 BPM and 1000 psi. Pumped 400 sx Premium Lite lead slurry followed by 400 sx Type 111 tail slurry @ 2 bpm and 600 - 800 psi. Got cement to surface 65 bbls into tail slurry. Closed Braden head and pumped remaining cement w/ pressure increasing to 2000 psi 13.5 bbls into displacement. SD. Stung out of retainer. Laid down 1 jt tbg and subs. Reverse circulated tbg clean w/20 bbls water. Circulated 2 bbls cement to pit. RD BJ. POH w/tbg and stinger. RIH w/bit to 2200'. SD WOC.

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary
Location		0	TD
Completion Unit	4,500	40,100	PBTD
Snubbing Services		0	Perforations
Bits		0	
Rental		9,250	
Water	2,500	9,450	
Cement	36,300	40,800	
Cased Hole Logging		36,900	
Perforating		0	
Stimulaton		0	
Contract Labor	4,500	15,600	Item
N2, Air Services		0	KB
Slickline		2,500	
Coil Tbg Services		0	
Flowback Services		0	
Supervision	1,000	8,000	
Transportation	3,500	10,800	
Miscellaneous		0	
Tubing		0	End of Tbg
Rods		0	
Wellhead		0	Packer Depth
Tank Battery & Separator		0	
Contingency		0	End of Tailpipe
Total	\$52,300	\$173,400	

Patara Oil and Gas

Daily Completion / Workover Report

AFE #	0	Report Date	30-Sep-10	
Well Name	Lisbon B 814 AGI	Supervisor	REX THOMPSON	
Type Work		Completion		
County	San Juan	State	Utah	
Section	14	Township	30S	Range 24 E
Daily Cost	\$5,600	Cum Cost	\$179,000	

Status at Report Time:
WOC

Previous 24 Hour Activity Detail:

RIH w/tbg. Tagged cement @ 2686'. Established circulation. Drilled 10'. Circulated to surface. Cement still green. Pulled 2 stands tbg. SD. WOC.

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary
Location		0	TD
Completion Unit	4,000	44,100	PBTD
Snubbing Services		0	Perforations
Bits		0	
Rental	1,600	10,850	
Water		9,450	
Cement		40,800	
Cased Hole Logging		36,900	
Perforating		0	
Stimulaton		0	
Contract Labor		15,600	Item
N2, Air Services		0	KB
Slickline		2,500	
Coil Tbg Services		0	
Flowback Services		0	
Supervision		8,000	
Transportation		10,800	
Miscellaneous		0	
Tubing		0	End of Tbg
Rods		0	
Wellhead		0	Packer Depth
Tank Battery & Separator		0	
Contingency		0	End of Tailpipe
Total	\$5,600	\$179,000	

Patara Oil and Gas

Daily Completion / Workover Report

AFE #	0	Report Date	1-Oct-10
Well Name	Lisbon B 814 AGI	Supervisor	REX THOMPSON
Type Work		Completion	
County	San Juan	State	Utah
Section	14 Township	Range	30S 24 E
Daily Cost	\$9,900	Cum Cost	\$188,900

Status at Report Time:

Prep to retrieve plug.

Previous 24 Hour Activity Detail:

RIH 2 stands. Tagged cement @ 2700'. Established circulation. Drilled hard cement to retainer. Drilled retainer and hard cement to 2952' and fell through. Circulated clean. Pressure tested casing to 1100 psi for 45 min. Test ok. RIH w/tbg and tagged sand @ 8368'. Rotated and circulated down to 8374'. Circulated clean. POH to 7700'. SD for night. Will POH and run retrieving tool in AM.

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary
Location		0	TD
Completion Unit	5,400	49,500	PBTD
Snubbing Services		0	Perforations
Bits		0	
Rental	4,500	15,350	
Water		9,450	
Cement		40,800	
Cased Hole Logging		36,900	
Perforating		0	
Stimulaton		0	
Contract Labor		15,600	Item
N2, Air Services		0	KB
Slickline		2,500	
Coil Tbg Services		0	
Flowback Services		0	
Supervision		8,000	
Transportation		10,800	
Miscellaneous		0	
Tubing		0	End of Tbg
Rods		0	
Wellhead		0	Packer Depth
Tank Battery & Separator		0	
Contingency		0	End of Tailpipe
Total	\$9,900	\$188,900	

Patara Oil and Gas **Daily Completion / Workover Report**

AFE #	0	Report Date	2-Oct-10
Well Name	Lisbon B 814 AGI	Supervisor	REX THOMPSON
Type Work		Completion	
County	San Juan	State	Utah
Section	14	Township	30S
		Range	24 E
Daily Cost	\$10,000	Cum Cost	\$198,900

Status at Report Time:

Laying down tbg.

Previous 24 Hour Activity Detail:

POH w/tbg and bit. Made up bit and casing scraper. RIH to 3000'. POH. Made up retrieving tool. RIH. Tagged sand @ 8374'. Established circulation. Circulated sand down to WRP. Circulated bottoms up. Latched and equalized plug. Worked plug free. POH and laid down 175 jts tbg. SD for night.

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary
Location		0	TD
Completion Unit	5,200	54,700	PBTD
Snubbing Services		0	Perforations
Bits	800	800	
Rental	2,500	17,850	
Water		9,450	
Cement		40,800	
Cased Hole Logging		36,900	
Perforating		0	
Stimulaton		0	
Contract Labor	1,500	17,100	Item
N2, Air Services		0	KB
Slickline		2,500	
Coil Tbg Services		0	
Flowback Services		0	
Supervision		8,000	
Transportation		10,800	
Miscellaneous		0	
Tubing		0	End of Tbg
Rods		0	
Wellhead		0	Packer Depth
Tank Battery & Separator		0	
Contingency		0	End of Tailpipe
Total	\$10,000	\$198,900	

Patara Oil and Gas

Daily Completion / Workover Report

AFE #	0	Report Date	3-Oct-10	
Well Name	Lisbon B 814 AGI	Supervisor	REX THOMPSON	
Type Work		Completion		
County	San Juan	State	Utah	
Section	14	Township	30S	Range 24 E
Daily Cost		Cum Cost	\$198,900	

Status at Report Time:

Ready to land tbg.

Previous 24 Hour Activity Detail:

POH and laid down remaining tbg and plug. 1 sealing element missing from plug. Broke down BOP stack. Rubber not in surface equipment. Evidently still in hole. Moved in, racked and tallied 280 jts 2-3/8 EUE AB Modified TK7 tbg. Made up seal assembly, 2-7/8x2-3/8 x-over, 1.87 X nipple w/plug in place and On/Off tool. Picked up and RIH w/268 jts tbg drifting as RIH. Tagged and stung in to packer. SD for night. Will land tbg in AM.

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary
Location		0	TD
Completion Unit	5,200	59,900	PBTD
Snubbing Services		0	Perforations
Bits		800	
Rental	1,900	19,750	
Water	1,200	10,650	
Cement		40,800	
Cased Hole Logging		36,900	
Perforating		0	
Stimulaton		0	
Contract Labor	2,500	19,600	Item
N2, Air Services		0	KB
Slickline		2,500	
Coil Tbg Services		0	
Flowback Services		0	
Supervision		8,000	
Transportation	1,800	12,600	
Miscellaneous		0	
Tubing		0	End of Tbg
Rods		0	
Wellhead		0	Packer Depth
Tank Battery & Separator		0	
Contingency		0	End of Tailpipe
Total	\$12,600	\$211,500	

Patara Oil and Gas

Daily Completion / Workover Report

AFE #	0	Report Date	4-Oct-10
Well Name	Lisbon B 814 AGI	Supervisor	REX THOMPSON
Type Work		Completion	
County	San Juan	State	Utah
Section	14 Township	Range	30S 24 E
Daily Cost	\$28,800	Cum Cost	\$227,700

Status at Report Time:
Casing Repair Complete.

Previous 24 Hour Activity Detail:

Attempted to release On/Off tool. Would not release. Possibly differentially stuck. Pumped 15 bbls water in tbg. Released On/Off tool. Spaced out tbg w/1-10' and 1-2' subs. Hooked up pump to packer fluid tank. Circulated in 220 bbls packer fluid w/O2 scavenger, Biocide, Corrosion inhibitor and H2s Scavenger. SD pump. Latched on to On/Off tool. RU Phoenix WL. RIH w/1.90 gauge ring to 8408'. POH. RIH w/Eq probe. Equalized plug. Tbg on vacuum. POH w/Eq probe. RIH w/Retrieving tool. Latched and released plug. Plug pulling hard. Retrieved plug and found seals were gone from plug. RD Phoenix. RU pump. Pumped 40 bbls water down tbg. Tbg on vacuum. Hooked pump up to packer fluid tank. Evacuated lines. Pressured casing to 1000 psi. Charted test for 30 min. Pressure increased to 1150 psi due to packer fluid expansion from downhole temperature. Test ok. Bled well off. ND BOP stack. NU Wellhead. Hooked up flowline connections. RD PU. Will clean location and move off in AM.

Tbg detail from bottom up = Seal assembly, 2-7/8 x 2-3/8 X-over, 1.87 X nipple, On/Off tool 266 jts tbg, 2' sub, 6' sub, 1 jt tbg and 2-3/8 X 2-7/8 X-over to hanger. Tbg landed with 10,000# on packer.

Cost Breakdown:

Expenditure	Daily Cost	Cum Cost	Downhole Summary
Location		0	TD
Completion Unit	5,400	65,300	PBTD
Snubbing Services		0	Perforations
Bits		800	
Rental	2,500	22,250	
Water	900	11,550	
Cement		40,800	
Cased Hole Logging		36,900	
Perforating		0	
Stimulaton		0	
Contract Labor	2,500	22,100	
N2, Air Services		0	Item Length (ft) Depth (ft)
Slickline		2,500	KB 14.00 14.00
Coil Tbg Services		0	10' tbg sub 10.00 24.00
Flowback Services		0	2'tbg sub 2.00 26.00
Supervision		8,000	267 jts 2-3/8 TK7 tbg 8,397.36 8,423.36
Transportation	2,500	15,100	X-over .9 8,424.26
Miscellaneous		0	
Tubing	15,000	15,000	End of Tbg
Rods		0	
Wellhead		0	Packer Depth
Tank Battery & Separator		0	
Contingency		0	End of Tailpipe
Total	\$28,800	\$240,300	

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		FORM 9
SUNDRY NOTICES AND REPORTS ON WELLS Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		5. LEASE DESIGNATION AND SERIAL NUMBER: UTSL-070008A
1. TYPE OF WELL Water Disposal Well		6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
2. NAME OF OPERATOR: PATARA OIL & GAS, LLC		7. UNIT or CA AGREEMENT NAME: LISBON
3. ADDRESS OF OPERATOR: 600 17th Street Ste 1900S , Denver, CO, 80202		8. WELL NAME and NUMBER: LISBON B-814
4. LOCATION OF WELL FOOTAGES AT SURFACE: 2601 FSL 1482 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: NESW Section: 14 Township: 30.0S Range: 24.0E Meridian: S		9. API NUMBER: 43037300820000
PHONE NUMBER: 303 563-5364 Ext		9. FIELD and POOL or WILDCAT: LISBON
COUNTY: SAN JUAN		STATE: UTAH

11.

CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
<input checked="" type="checkbox"/> NOTICE OF INTENT Approximate date work will start: 9/19/2012	<input checked="" type="checkbox"/> ACIDIZE
<input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS
<input type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS
<input type="checkbox"/> DRILLING REPORT Report Date:	<input type="checkbox"/> DEEPEN
	<input type="checkbox"/> OPERATOR CHANGE
	<input type="checkbox"/> PRODUCTION START OR RESUME
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> WATER SHUTOFF
	<input type="checkbox"/> WILDCAT WELL DETERMINATION
	<input type="checkbox"/> ALTER CASING
	<input type="checkbox"/> CHANGE TUBING
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS
	<input type="checkbox"/> FRACTURE TREAT
	<input type="checkbox"/> PLUG AND ABANDON
	<input type="checkbox"/> RECLAMATION OF WELL SITE
	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> SI TA STATUS EXTENSION
	<input type="checkbox"/> CASING REPAIR
	<input type="checkbox"/> CHANGE WELL NAME
	<input type="checkbox"/> CONVERT WELL TYPE
	<input type="checkbox"/> NEW CONSTRUCTION
	<input type="checkbox"/> PLUG BACK
	<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION
	<input type="checkbox"/> TEMPORARY ABANDON
	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> APD EXTENSION
	OTHER: <input style="width: 100px;" type="text"/>

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Due to scale buildup over existing perfs in the subject wellbore, Patara proposes to add new perforations to the existing zone, allowing injection operations to continue. Perforations: 8476 - 8479 8538 - 8546 8568 - 8650 All phases will be 4 spf, 120 degrees. Perforations will be washed with 7,000 gals 15% HCL. The well will be brought back online once cleanout operations are complete, and injection operations will commence. WBD attached. Please contact Christopher Noonan with any questions. Thank you.

**Approved by the
Utah Division of
Oil, Gas and Mining**

Date: October 16, 2012

By: 

NAME (PLEASE PRINT) Christopher Noonan	PHONE NUMBER 303 563-5377	TITLE Supervisor: Regulations & Production
SIGNATURE N/A	DATE 9/19/2012	

WELLBORE DIAGRAM

Surface Loc: 2601' FSL & 1482' FWL, Sec. 14

Operator: Tom Brown, Inc
 Well Name: Lisbon B-814
 Lease Number: 8910079759
 Location: NESW Sec. 14
 Field: Lisbon
 County, State: San Juan County, NM
 API Number: 43-037-30082
 Diagram Date: 3/23/2004 jw
 Rev 8/3/05 jw
 Revised 8/30/2

FORMATIONS

Homaker Trail
 Ismay
 Paradox Salt
 Base Salt
 Mississippian
 Ouray

3162
 4040
 4386
 8350
 8470
 8916

KB 6482'

GL 6468'

9-5/8" 43.5# N-80 csg set @
 1003'. Cmt'd w/ 450 sx 50/50
 Poz f/b 150 sx "C" - cmt to surf
 (set 7/13/72)

TOC @ 5174'

Baker Model D 40-26 ATSA PKR
 set @ 8413'
 (2/24/05)

Cmt retainer @ 8658'

Cmt retainer @ 8721

Cmt retainer @ 8783'

Cmt retainer @ 8829'

PBDT 8935'

8965'

8476-8479'

8538-8546'

8568-8640'

8640-8650'

8662-8670'

8772-8781'

8789-8808'

8843-8875'

5-1/2" 17# J-55 & N-80 csg @ 9450'.

Cemented w/ 900 sx Halcolite; f/b 150 sx C.

Well History

Spud Date: 7/8/1972

TD Reached: 8/29/1972

Completion Date: 10/13/1972

Worked over 10/4/2010 to sqz csg and i

2/25/05 Tubing Detail:

Baker Model D 40-26 ATSA PKR

1 jt 2-7/8" L-80 TK-7 tbg

2.25 profile F-nipple(9% chrome)

272 jts 2-7/8 L-80 TK-7 tbg

5-2-7/8" L-80 TK-7 subs (3 @ 6', 2 @ 4')

5/1991: Perf'd w/4 spf, acidize w/4300 gal 15% H

5/1991: Perf'd w/4 spf, acidize w/500 gal 15% H

8/1982: Perf'd w/4 spf, acidize w/2000 gals 28 H
Sqzd w/150 sx "G" cmt9/1972: Perf'd w/ 2 spf. Acdz w/500 gals 28% H
Sqzd w/150 sx cmt9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% H
Sqz'd perms w/185 sx cmt9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% H
Sqz'd perms w/200 sx cmt

c.

I-T30S-R24E

nty, UT

v

2012 J. Warren

replace tbg

HCL SWIC acid

CL

CL

Cl acid

HCL

HCL

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		FORM 9
SUNDRY NOTICES AND REPORTS ON WELLS Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		5. LEASE DESIGNATION AND SERIAL NUMBER: UTSL-070008A
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2. NAME OF OPERATOR: PATARA OIL & GAS, LLC		7. UNIT or CA AGREEMENT NAME: LISBON
3. ADDRESS OF OPERATOR: 600 17th Street Ste 1900S , Denver, CO, 80202		8. WELL NAME and NUMBER: LISBON B-814
4. LOCATION OF WELL FOOTAGES AT SURFACE: 2601 FSL 1482 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: NESW Section: 14 Township: 30.0S Range: 24.0E Meridian: S		9. API NUMBER: 43037300820000
PHONE NUMBER: 303 563-5364 Ext		9. FIELD and POOL or WILDCAT: LISBON
COUNTY: SAN JUAN		STATE: UTAH
11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA		
TYPE OF SUBMISSION	TYPE OF ACTION	
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input checked="" type="checkbox"/> ACIDIZE	
<input checked="" type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: 9/20/2012	<input type="checkbox"/> ALTER CASING	
<input type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> CASING REPAIR	
<input type="checkbox"/> DRILLING REPORT Report Date:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	
	<input type="checkbox"/> CHANGE TUBING	
	<input type="checkbox"/> CHANGE WELL STATUS	
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	
	<input type="checkbox"/> DEEPEN	
	<input type="checkbox"/> FRACTURE TREAT	
	<input type="checkbox"/> OPERATOR CHANGE	
	<input type="checkbox"/> PLUG AND ABANDON	
	<input type="checkbox"/> PRODUCTION START OR RESUME	
	<input type="checkbox"/> RECLAMATION OF WELL SITE	
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	
	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	
	<input type="checkbox"/> TUBING REPAIR	
	<input type="checkbox"/> VENT OR FLARE	
	<input type="checkbox"/> WATER SHUTOFF	
	<input type="checkbox"/> SI TA STATUS EXTENSION	
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	
	<input type="checkbox"/> OTHER: <input style="width: 100px;" type="text"/>	
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc. Due to scale buildup over existing perfs in the subject wellbore, Patara has completed the addition of new perforations to the existing zone, allowing injection operations to continue. Perforations: 8476 - 8479, 8538 - 8546, 8568 - 8650. All phases were shot at 4 spf, 120 degrees. Perforations washed with 4,788 gals 15% HCL. The well will be brought back online 9/21/2012. WBD attached.		
NAME (PLEASE PRINT) Christopher Noonan		PHONE NUMBER 303 563-5377
SIGNATURE N/A		TITLE Supervisor: Regulations & Production
DATE 10/22/2012		<div style="text-align: right;"> Accepted by the Utah Division of Oil, Gas and Mining FOR RECORD ONLY October 25, 2012 </div>

WELLBORE DIAGRAM

Surface Loc: 2601' FSL & 1482' FWL, Sec. 14

FORMATIONS

Homaker Trail
Ismay
Paradox Salt
Base Salt
Mississippian
Ouray

3162
4040
4386
8350
8470
8916

KB 6482'

GL 6468'

9-5/8" 43.5# N-80 csg set @
1003'. Cmt'd w/ 450 sx 50/50
Poz f/b 150 sx "C" - cmt to surf
(set 7/13/72)

TOC @ 5174'

Baker Model D 40-26 ATSA PKR
set @ 8413'
(2/24/05)

Cmt retainer @ 8658'

Cmt retainer @ 8721

Cmt retainer @ 8783'

Cmt retainer @ 8829'

PBSD 8935'

8965'

8476-8479'
8538-8546
8568-8640

8640-8650'

8662-8670

8772-8781'

8789-8808'

8843-8875

5-1/2" 17# J-55 & N-80 csg @ 9450'.

Cemented w/ 900 sx Halcolite; f/b 150 sx C.

Operator: Tom Brown, Inc.

Well Name: Lisbon B-814

Lease Number: 8910079759

Location: NESW Sec. 14-T30S-R24E

Field: Lisbon

County, State: San Juan County, UT

API Number: 43-037-30082

Diagram Date: 3/23/2004 jw

Rev 8/3/05 jw

Revised 8/30/2012 J. Warren

Revised 10/22/2012 C. Noonan

Well History

Spud Date: 7/8/1972

TD Reached: 8/29/1972

Completion Date: 10/13/1972

Workover (Sqz csg & replace tbg): 10/4/2010

Recompletion (Reperf & acidize): 9/20/2012

2/25/05 Tubing Detail:

Baker Model D 40-26 ATSA PKR

1 jt 2-7/8" L-80 TK-7 tbg

2.25 profile F-nipple(9% chrome)

272 jts 2-7/8 L-80 TK-7 tbg

5-2-7/8" L-80 TK-7 subs (3 @ 6', 2 @ 4')

5/1991: Perf'd w/4 spf, acidize w/4300 gal 15% HCL SWIC acid

9/2012: Re-perf'd w/ 4 spf, acidize w/ 4788 gal 15% HCL

5/1991: Perf'd w/4 spf, acidize w/500 gal 15% HCL

8/1982: Perf'd w/4 spf, acidize w/2000 gals 28 HCL
Sqzd w/150 sx "G" cmt9/1972: Perf'd w/ 2 spf. Acldz w/500 gals 28% HCl acid
Sqzd w/150 sx cmt9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
Sqzd perfs w/185 sx cmt9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
Sqzd perfs w/200 sx cmt

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

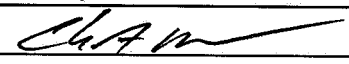
UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

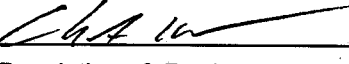
Well Name and Number Lisbon B-816	API Number 4303730082
Location of Well Footage : 2601' FSL 1482' FWL County : San Juan QQ, Section, Township, Range: NESW 14 30S 24E State : UTAH	Field or Unit Name Lisbon Lease Designation and Number UTU66578

EFFECTIVE DATE OF TRANSFER: 11/1/2012

CURRENT OPERATOR

Company: Patara Oil & Gas LLC	Name: Christopher Noonan
Address: 600 17th Street, Suite 1900S	Signature: 
city Denver state CO zip 80202	Title: Regulations & Production Reporting Supervisor
Phone: (303) 825-0685	Date:
Comments: n/a	

NEW OPERATOR

Company: CCI Paradox Upstream LLC	Name: Christopher Noonan
Address: 600 17th Street, Suite 1900S	Signature: 
city Denver state CO zip 80202	Title: Regulations & Production Reporting Supervisor
Phone: (303) 825-0685	Date:
Comments: n/a	

(This space for State use only)

Transfer approved by: 

Approval Date: 2-6-13

Title: UIC Geologist

Comments:

Patara Oil Gas, LLC (N3670) to CCI Paradox Upstream, LLC (N3945)

Effective 11/1/2012

Lisbon Unit

Well Name	Section	TWN	RNG	API Number	Entity	Lease Type	Well Type	Well Status
BELCO ST 4 (LISBON B-816)	16	300S	240E	4303716244	8123	State	WD	A
LISBON B-814	14	300S	240E	4303730082	8123	Federal	WD	A
LISBON A-715	15	300S	240E	4303716237	8123	Federal	WD	I
LISBON B-613	13	300S	240E	4303716240	8123	Federal	OW	P
NW LISBON USA A-2 (D-810)	10	300S	240E	4303716471	8123/9740	Federal	GW	P
LISBON UNIT A-911	11	300S	240E	4303731014	8123	Federal	GW	P
LISBON B-614A	14	300S	240E	4303731351	9740	Federal	OW	P
LISBON B-810	10	300S	240E	4303731433	9740	Federal	OW	P
LISBON B-615	15	300S	240E	4303715123	8123	Federal	OW	S
LISBON B912	12	300S	240E	4303715769	8123	Federal	OW	S
LISBON C-69	09	300S	240E	4303716245	8123	Federal	OW	S
LISBON C-94	04	300S	240E	4303716247	8123	Federal	OW	S
LISBON UNIT D-84	04	300S	240E	4303716250	8123	Federal	OW	S
LISBON D-89	09	300S	240E	4303716251	8123	Federal	OW	S
LISBON B-84	04	300S	240E	4303730054	8123	Federal	OW	S
LISBON C-99	09	300S	240E	4303730693	8123	Federal	OW	S
LISBON B-94	04	300S	240E	4303730695	8123	Federal	OW	S
LISBON C-910	10	300S	240E	4303731323	8123	Federal	OW	S

RECEIVED

JAN 23 2013

FORM 9

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

DIV. OF OIL, GAS & MINING

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <u>Multiple Well Transfer</u>		5. LEASE DESIGNATION AND SERIAL NUMBER: n/a
2. NAME OF OPERATOR: Patara Oil & Gas LLC <u>N3670</u>		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: n/a
3. ADDRESS OF OPERATOR: 600 17th St. Ste. 1900S City Denver STATE CO ZIP 80202		7. UNIT or CA AGREEMENT NAME: n/a
PHONE NUMBER: (303) 825-0685		8. WELL NAME and NUMBER: Multiple
4. LOCATION OF WELL FOOTAGES AT SURFACE: n/a		9. API NUMBER: n/a
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:		10. FIELD AND POOL, OR WILDCAT: n/a

COUNTY: San Juan, UT

STATE:

UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input checked="" type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
<input checked="" type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: 11/1/2012	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Patara Oil & Gas LLC (Patara) hereby requests the transfer of operating rights and responsibilities for the subject wells, listed herein, to the new owner/operator of the assets, being effective November 1, 2012; CCI Paradox Upstream LLC (CCI).

Please see Exhibit I for a detailed list of upstream assets considered for transfer. Patara midstream assets will be transferred via a separate letter, enclosed.

NAME (PLEASE PRINT) Christopher A. Noonan TITLE Regulations & Production Reporting Supervisor
SIGNATURE *Christopher A. Noonan* DATE 1/18/13

(This space for State use only)

APPROVED

FEB 12 2013

(5/2000)

DIV. OF OIL, GAS & MINING

(See Instructions on Reverse Side)

BY: Rachel Medina

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <u>Multiple Well Transfer</u>		5. LEASE DESIGNATION AND SERIAL NUMBER: n/a
2. NAME OF OPERATOR: CCI Paradox Upstream LLC <u>N3945</u>		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: n/a
3. ADDRESS OF OPERATOR: 600 17th St. Ste. 1900S CITY <u>Denver</u> STATE <u>CO</u> ZIP <u>80202</u>		7. UNIT or CA AGREEMENT NAME: n/a
4. LOCATION OF WELL FOOTAGES AT SURFACE: <u>n/a</u>		8. WELL NAME and NUMBER: <u>Multiple</u>
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:		9. API NUMBER: n/a
COUNTY: <u>San Juan, UT</u>		10. FIELD AND POOL, OR WILDCAT: n/a
STATE: <u>UTAH</u>		

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA			
TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input checked="" type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
<input checked="" type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: <u>11/1/2012</u>	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

CCI Paradox Upstream LLC (CCI), hereby requests the transfer of operating rights and responsibilities for the subject wells, listed herein, to the new owner/operator of the assets, CCI, being effective November 1, 2012. The assets were previously operated by Patara Oil & Gas LLC (Patara) prior to sale.

Please see Exhibit I for a detailed list of upstream assets considered for transfer. Patara midstream assets will be transferred via a separate letter, enclosed.

Bond Number:
BLM: 105865919
State: 105865922

NAME (PLEASE PRINT) <u>Christopher A. Noonan</u>	TITLE <u>Regulations & Production Reporting Supervisor</u>
SIGNATURE <u>[Signature]</u>	DATE <u>2/6/2012</u>

(This space for State use only)

APPROVED

FEB 12 2013

DIV. OIL GAS & MINING

BY: Rachel Medina

RECEIVED

FEB 07 2013

Div. of Oil, Gas & Mining

Exhibit I

BLM Form 3160-5 Transfer of Operator

Utah Form 9 Transfer of Operator

State of Utah Upstream Assets

01/09/2013

API Well Number	Operator	Well Name	Well Status	Well Type	Field Name	County	Qtr/Qtr	Section	Township-Range)
✓ 43-037-15049-00-00	PATARA OIL & GAS LLC	LISBON D-616	Shut-In	Oil Well	LISBON	SAN JUAN	NENE	16	30S-24E 1
✓ 43-037-15123-00-00	PATARA OIL & GAS LLC	LISBON B-615	Producing	Oil Well	LISBON	SAN JUAN	NENW	15	30S-24E 2
✓ 43-037-15769-00-00	PATARA OIL & GAS LLC	LISBON B912	Shut-In	Oil Well	LISBON	SAN JUAN	SESW	12	30S-24E 3
✓ 43-037-16219-00-00	PATARA OIL & GAS LLC	BIG INDIAN UNIT 1	Shut-In	Oil Well	BIG INDIAN (MADISON)	SAN JUAN	SENE	33	29S-24E 11
✓ 43-037-16221-00-00	PATARA OIL & GAS LLC	BIG INDIAN 4	Shut-In	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	SWSW	14	30S-25E 5
✓ 43-037-16237-00-00	PATARA OIL & GAS LLC	LISBON A-715	Inactive	Water Disposal Well	LISBON	SAN JUAN	SWNW	15	30S-24E 6
✓ 43-037-16240-00-00	PATARA OIL & GAS LLC	LISBON B-613	Shut-In	Oil Well	LISBON	SAN JUAN	NENW	13	30S-24E 7
✓ 43-037-16242-00-00	PATARA OIL & GAS LLC	LISBON B-616	Shut-In	Oil Well	LISBON	SAN JUAN	NESW	16	30S-24E 8
✓ 43-037-16244-00-00	PATARA OIL & GAS LLC	BELCO ST 4 (LISBON B-816)	Active	Water Disposal Well	LISBON	SAN JUAN	NESW	16	30S-24E 9
✓ 43-037-16245-00-00	PATARA OIL & GAS LLC	LISBON C-69	Shut-In	Oil Well	LISBON	SAN JUAN	NWNE	9	30S-24E 10

✓ 43-037-16247-00-00	PATARA OIL & GAS LLC	LISBON C-94	Shut-In	Oil Well	LISBON	SAN JUAN	SWSE	4	30S-24E 11
✓ 43-037-16250-00-00	PATARA OIL & GAS LLC	LISBON UNIT D-84	Shut-In	Oil Well	LISBON	SAN JUAN	NESE	4	30S-24E 12
✓ 43-037-16251-00-00	PATARA OIL & GAS LLC	LISBON D-89	Shut-In	Oil Well	LISBON	SAN JUAN	NESE	9	30S-24E 13
43-037-16469-00-00	PATARA OIL & GAS LLC	LISBON U B-610	Producing	Oil Well	LISBON	SAN JUAN	NENW	10	30S-24E 14
43-037-16471-00-00	PATARA OIL & GAS LLC	NW LISBON USA A-2 (D-810)	Producing	Gas Well	LISBON	SAN JUAN	NESE	10	30S-24E 15
43-037-30054-00-00	PATARA OIL & GAS LLC	LISBON B-84	Shut-In	Oil Well	LISBON	SAN JUAN	NESW	4	30S-24E 16
43-037-30082-00-00	PATARA OIL & GAS LLC	LISBON B-814	Active	Water Disposal Well	LISBON	SAN JUAN	NESW	14	30S-24E 17
43-037-30317-00-00	PATARA OIL & GAS LLC	FEDERAL 15-25	Shut-In	Gas Well	WILSON CANYON	SAN JUAN	SWSE	25	29S-23E 18
43-037-30693-00-00	PATARA OIL & GAS LLC	LISBON C-99	Shut-In	Oil Well	LISBON	SAN JUAN	SWSE	9	30S-24E 19
43-037-30694-00-00	PATARA OIL & GAS LLC	LISBON U D-610	Shut-In	Gas Well	LISBON	SAN JUAN	NENE	10	30S-24E 20
43-037-30695-00-00	PATARA OIL & GAS LLC	LISBON B-94	Shut-In	Oil Well	LISBON	SAN JUAN	SESW	4	30S-24E 1
43-037-31014-00-00	PATARA OIL & GAS LLC	LISBON UNIT A-911	Producing	Gas Well	LISBON	SAN JUAN	SWSW	11	30S-24E 2
43-037-31034-00-00	PATARA OIL & GAS LLC	LISBON UNIT D-716	Shut-In	Oil Well	LISBON	SAN JUAN	SENE	16	30S-24E 3
43-037-31323-00-00	PATARA OIL & GAS LLC	LISBON C-910	Shut-In	Oil Well	LISBON	SAN JUAN	SWSE	10	30S-24E 4
43-037-31351-00-00	PATARA OIL & GAS LLC	LISBON B-614A	Shut-In	Oil Well	LISBON	SAN JUAN	NENW	14	30S-24E 5
43-037-31433-00-00	PATARA OIL & GAS LLC	LISBON B-810	Producing	Oil Well	LISBON	SAN JUAN	NESW	10	30S-24E 6

43-037-31829-00-00	PATARA OIL & GAS LLC	BIG INDIAN 35-24	Shut-In	Gas Well	SOUTH PINE RIDGE	SAN JUAN	SENE	35	29S-24E 7
43-037-31831-00-00	PATARA OIL & GAS LLC	BULL HORN U 10-43	Producing	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	SWSE	10	30S-25E 8
43-037-31838-00-00	PATARA OIL & GAS LLC	MIDDLE MESA ST 36-14-29-24	Producing	Gas Well	SOUTH PINE RIDGE	SAN JUAN	NENE	36	29S-24E 9
43-037-31843-00-00	PATARA OIL & GAS LLC	BULL HORN FED 9-14-30-25	Producing	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	NENE	9	30S-25E 30
43-037-31848-00-00	PATARA OIL & GAS LLC	BULL HORN FED 15-14-30-25	Producing	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	NENE	15	30S-25E 1
43-037-31849-00-00	PATARA OIL & GAS LLC	BULL HORN FED 10-21-30-25	Producing	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	NWSW	10	30S-25E 2
43-037-31850-00-00	PATARA OIL & GAS LLC	BIG INDIAN FED 14-21-30-25	Producing	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	SWNW	14	30S-25E 3
43-037-31853-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 5-6-30-25	Producing	Gas Well	SOUTH PINE RIDGE	SAN JUAN	LOT6	5	30S-25E 4
43-037-31854-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 31-31-29-25	Producing	Gas Well	SOUTH PINE RIDGE	SAN JUAN	NWSW	31	29S-25E 5
43-037-31855-00-00	PATARA OIL & GAS LLC	MIDDLE MESA ST 36-12-29-24	Shut-In	Gas Well	SOUTH PINE RIDGE	SAN JUAN	NENW	36	29S-24E 6
43-037-31856-00-00	PATARA OIL & GAS LLC	MIDDLE MESA ST 36-24-29-24	Producing	Gas Well	SOUTH PINE RIDGE	SAN JUAN	SENE	36	29S-24E 7
43-037-31859-00-00	PATARA OIL & GAS LLC	BIG INDIAN FED 15-24-30-25	Shut-In	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	SWNW	14	30S-25E 8
43-037-31860-00-00	PATARA OIL & GAS LLC	BIG INDIAN FED 14-42-30-25	Producing	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	SESW	14	30S-25E 9
43-037-31861-00-00	PATARA OIL & GAS LLC	BULL HORN FED 10-42-30-25	Shut-In	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	SESW	10	30S-25E 40
43-037-31864-00-00	PATARA OIL & GAS LLC	BULL HORN FED 10-31-30-25	Producing	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	NWSW	10	30S-25E 1
43-037-31877-00-00	PATARA OIL & GAS LLC	MIDDLE MESA ST 36-12B-29-24	Producing	Gas Well	SOUTH PINE RIDGE	SAN JUAN	NENW	36	29S-24E 2

43-037-31878-00-00	PATARA OIL & GAS LLC	MIDDLE MESA ST 36-24B-29-24	Producing	Gas Well	SOUTH PINE RIDGE	SAN JUAN	SENE	36	29S-24E 3
43-037-31883-00-00	PATARA OIL & GAS LLC	BIG INDIAN FED 15-24B-30-25	Shut-In	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	SWNW	14	30S-25E 4
43-037-31884-00-00	PATARA OIL & GAS LLC	BIG INDIAN FED 23-13B-30-25	Approved permit (APD); not yet spudded	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	NWNE	23	30S-25E 5
43-037-31885-00-00	PATARA OIL & GAS LLC	BIG INDIAN FED 23-13-30-25	Approved permit (APD); not yet spudded	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	NWNE	23	30S-25E 6
43-037-31891-00-00	PATARA OIL & GAS LLC	BULL HORN FED 15-13-30-25	Producing	Gas Well	BIG INDIAN (HERMOSA)	SAN JUAN	NENE	15	30S-25E 7
43-037-31893-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 30-41-29-25	Approved permit (APD); not yet spudded	Gas Well	UNDESIGNATED	SAN JUAN	SWSW	30	29S-25E 8
43-037-31897-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 5-10-30-25	Spudded (Drilling commenced: Not yet completed)	Gas Well	SOUTH PINE RIDGE	SAN JUAN	LT10	5	30S-25E 9
43-037-31901-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 25-43-29-24	Approved permit (APD); not yet spudded	Gas Well	UNDESIGNATED	SAN JUAN	SWSE	25	29S-24E 10
43-037-31902-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 25-41-29-24	Producing	Gas Well	SOUTH PINE RIDGE	SAN JUAN	SWSW	25	29S-24E 1
43-037-31903-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 25-31-29-24	Producing	Gas Well	SOUTH PINE RIDGE	SAN JUAN	NWSW	25	29S-24E 2
43-037-31904-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 26-34-29-24	Producing	Gas Well	SOUTH PINE RIDGE	SAN JUAN	NESW	26	29S-24E 3

43-037-31905-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 26-23-29-24	Approved permit (APD); not yet spudded	Gas Well	UNDESIGNATED	SAN JUAN	SWNE	26	29S-24E 4
43-037-31906-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 31-44-29-25	Producing	Gas Well	SOUTH PINE RIDGE	SAN JUAN	SESE	31	29S-25E 5
43-037-31907-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 31-33-29-25	Producing	Gas Well	SOUTH PINE RIDGE	SAN JUAN	NWSE	31	29S-25E 4
43-037-31909-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 31-22-29-25	Approved permit (APD); not yet spudded	Gas Well	SOUTH PINE RIDGE	SAN JUAN	SENW	31	29S-25E 7
43-037-31910-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 31-11-29-25	Approved permit (APD); not yet spudded	Gas Well	SOUTH PINE RIDGE	SAN JUAN	NWNW	31	29S-25E 8
43-037-50008-00-00	PATARA OIL & GAS LLC	CISCO STATE 36-13	Temporarily-Abandoned	Gas Well	WILDCAT	SAN JUAN	NWNE	36	31S-24E 9
43-037-50010-00-00	PATARA OIL & GAS LLC	MIDDLE MESA FED 4-20-30-25	Producing	Gas Well	SOUTH PINE RIDGE	SAN JUAN	SWNW	4	30S-25E 60
43-037-50012-00-00	PATARA OIL & GAS LLC	Lisbon 11-32MC	Returned APD (Unapproved)	Oil Well	UNDESIGNATED	SAN JUAN	SWNE	11	30S-24E 1
43-037-50013-00-00	PATARA OIL & GAS LLC	Lisbon 14-11MC	Approved permit (APD); not yet spudded	Oil Well	LISBON	SAN JUAN	NWNW	14	30S-24E 2
43-037-50014-00-00	PATARA OIL & GAS LLC	Lisbon 10-44MC	Approved permit (APD); not yet spudded	Oil Well	LISBON	SAN JUAN	NWNW	14	30S-24E 3

43-037-50015-00-00	PATARA OIL & GAS LLC	Lisbon 3-32MC	Approved permit (APD); not yet spudded	Oil Well	LISBON	SAN JUAN	NESE	4	4 30S-24E
43-037-50016-00-00	PATARA OIL & GAS LLC	Lisbon 11-33MC	Approved permit (APD); not yet spudded	Oil Well	LISBON	SAN JUAN	NENW	14	5 30S-24E
43-037-50017-00-00	PATARA OIL & GAS LLC	Lisbon 11-21MC	Approved permit (APD); not yet spudded	Gas Well	LISBON	SAN JUAN	NWSE	10	6 30S-24E
43-037-50018-00-00	PATARA OIL & GAS LLC	Lisbon 3-43MC	Approved permit (APD); not yet spudded	Oil Well	LISBON	SAN JUAN	SESE	3	7 30S-24E
43-037-50019-00-00	PATARA OIL & GAS LLC	Lisbon 10-33MC	Spudded (Drilling commenced: Not yet completed)	Oil Well	LISBON	SAN JUAN	NWSE	10	8 30S-24E
43-037-50021-00-00	PATARA OIL & GAS LLC	Middle Mesa Fed 31-42-29-25	Approved permit (APD); not yet spudded	Gas Well	SOUTH PINE RIDGE	SAN JUAN	SESW	31	9 29S-25E
43-037-50026-00-00	PATARA OIL & GAS LLC	Middle Mesa Federal 5-8-30-25	Approved permit (APD); not yet spudded	Gas Well	SOUTH PINE RIDGE	SAN JUAN	NENE	5	10 30S-25E

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		FORM 9			
SUNDRY NOTICES AND REPORTS ON WELLS Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		5. LEASE DESIGNATION AND SERIAL NUMBER: UTSL-070008A			
1. TYPE OF WELL Water Disposal Well		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: 7. UNIT or CA AGREEMENT NAME: LISBON			
2. NAME OF OPERATOR: CCI PARADOX UPSTREAM, LLC		8. WELL NAME and NUMBER: LISBON B-814			
3. ADDRESS OF OPERATOR: 600 17th Street, Suite 1900S , Denver, CO, 80202		9. API NUMBER: 43037300820000			
4. LOCATION OF WELL FOOTAGES AT SURFACE: 2601 FSL 1482 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: NESW Section: 14 Township: 30.0S Range: 24.0E Meridian: S		9. FIELD and POOL or WILDCAT: LISBON COUNTY: SAN JUAN STATE: UTAH			
11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA					
TYPE OF SUBMISSION <input checked="" type="checkbox"/> NOTICE OF INTENT Approximate date work will start: 10/6/2014 <input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: <input type="checkbox"/> SPUD REPORT Date of Spud: <input type="checkbox"/> DRILLING REPORT Report Date:	TYPE OF ACTION <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input checked="" type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION </td> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER </td> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <input style="width: 100px;" type="text"/> </td> </tr> </table>		<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input checked="" type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <input style="width: 100px;" type="text"/>
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12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc. <div style="display: flex; justify-content: space-between;"> <div style="width: 70%;"> CCI Paradox Upstream, LLC respectfully requests approval to recomplete the Lisbon B-814 well to include reperforating the current formation and acidizing. The reperforating and acidizing would follow the attached plan with supplemental well bore diagram. </div> <div style="width: 25%; text-align: right;"> Approved by the October 06, 2014 Oil, Gas and Mining Date: _____ By: </div> </div>					
NAME (PLEASE PRINT) Don Hamilton		PHONE NUMBER 435 650-3866			
SIGNATURE N/A		TITLE Permitting Agent DATE 10/4/2014			

**Synopsis of Work to Be Performed on the Lisbon B-814 AGI Well
NE WS Section 14-T30S-R24E
San Juan County, Utah**

Note that all work will be performed with a safety crew on location due to the high content of H₂S in the wellbore.

1. Set a plug in the packer tailpipe at approximately 8416'. Remove and LD the internally plastic coated tubing.
2. Unload a 2 3/8" tbg workstring from inventory at Tuboscope. Will need 290 jts.
3. Spot frac tanks for flowback and fill w/ produced water for drilling use. Be sure flowback tank is positioned downwind.
4. MU a Weatherford packer plucker mill & spear, SN and tbg. TIH and mill slips on the permanent packer located at 8413'. TOOH w/ packer.
5. RU N2 unit. MU mill, junk basket, SN w/ check valve, drill collars and TIH. Be very gentle rotating down from 8413' to top of fill at 8626'. Casing condition is uncertain.
6. Clean out well to the top of the cement retainer at 8658'
7. Drill out the following:
 - Cement retainer at 8658'
 - Cement from 8658' to 8721'

 - Cement retainer at 8721'
 - Cement from 8721' to 8783'

 - Cement retainer at 8783'
 - Cement from 8783' to 8820'
8. Circulate hole clean and TOOH. LD mill, junk basket and drill collars.

9. RU Cutters Wireline and lubricator. RIH and perforate 4 spf w/ 90 degree phasing in the Leadville as follows:
8789 – 8808'
8772 – 8781'
8662 – 8670'
10. MU a Weatherford 5 ½" J-Latch packer and TIH to 8659' (need to set in good casing – not much room for tolerance). Adjust for collars on bond log.
11. RU Baker Services and acidize with 10,000 gals of acid with fresh water spacers & ball sealers in order to open up all of the perforations.
12. While Baker Services is on site, perform an injectivity test on the new perforations.
13. RD Baker Services and POOH LD tubing and packer.
14. Assuming that the injectivity test was acceptable, RIH and set a nickel plated 5 ½" Weatherford permanent packer w/ polished bore assy and latch in capability with a 6' plastic lined sub on btm w/ 2 SNs at +/-8400' depending on the collars shown on the bond log. Have pump out plug in btm SN set at pressure needed to test the tbg integrity.
15. MU seal assy SN and plastic lined tbg. TIH and land tbg in packer. ND BOPs and NU tree. Test tbg to 1500 psi. Pump out plug.
16. NU injection line. RD rig, safety crew and haul off fluids to the Lisbon disposal well. Commence acid gas injection.

WELLBORE DIAGRAM

Surface Loc: 2601' FSL & 1482' FWL, Sec. 14

Operator: CCI Paradox Upstream, LLC
 Well Name: Lisbon B-814
 Lease Number: 8910079759
 Location: NESW Sec. 14-T30S-R24E
 Field: Lisbon
 County, State: San Juan County, UT
 API Number: 43-037-30082
 Diagram Date: 3/23/2004 jw
 Rev 8/3/05 jw
 Revised 8/30/2012 J. Warren
 Revised 10/22/2012 C. Noonan

FORMATIONS

Homaker Trail
 Ismay
 Paradox Salt
 Base Salt
 Mississippian
 Ouray

3162
 4040
 4386
 8350
 8470
 8916

KB 6482'

GL 6468'

9-5/8" 43.5# N-80 csg set @
 1003'. Cmt'd w/ 450 sx 50/50
 Poz f/b 150 sx "C" - cmt to surf
 (set 7/13/72)

TOC @ 5174'

Baker Model D 40-26 ATSA PKR
 set @ 8413'
 (2/24/05)

Cmt retainer @ 8658'

Cmt retainer @ 8721

Cmt retainer @ 8783'

Cmt retainer @ 8829'

PBTB 8935'

8965'

Well History

Spud Date: 7/8/1972
 TD Reached: 8/29/1972
 Completion Date: 10/13/1972
 Workover (Sqz csg & replace tbg): 10/4/2010
 Recompletion (Reperf & acidize): 9/20/2012

2/25/05 Tubing Detail:

Baker Model D 40-26 ATSA PKR
 1 jt 2-7/8" L-80 TK-7 tbg
 2.25 profile F-nipple(9% chrome)
 272 jts 2-7/8 L-80 TK-7 tbg
 5-2-7/8" L-80 TK-7 subs (3 @ 6', 2 @ 4')

8476-8479'
 8538-8546
 8568-8640

5/1991: Perf'd w/4 spf, acidize w/4300 gal 15% HCL SWIC acid
 9/2012: Re-perf'd w/ 4 spf, acidize w/ 4788 gal 15% HCL

8640-8650'

5/1991: Perf'd w/4 spf, acidize w/500 gal 15% HCL

8662-8670

8/1982: Perf'd w/4 spf, acidize w/2000 gals 28 HCL
 Sqzd w/150 sx "G" cmt

8772-8781'

9/1972: Perf'd w/ 2 spf. Acdz w/500 gals 28% HCL acid
 Sqzd w/150 sx cmt

8789-8808'

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
 Sqz'd perms w/185 sx cmt

8843-8875

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
 Sqz'd perms w/200 sx cmt

5-1/2" 17# J-55 & N-80 csg @ 9450'.

Cemented w/ 900 sx Halcolite; f/b 150 sx C.

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		FORM 9			
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1. TYPE OF WELL Water Disposal Well		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: 7. UNIT or CA AGREEMENT NAME: LISBON			
2. NAME OF OPERATOR: CCI PARADOX UPSTREAM, LLC		8. WELL NAME and NUMBER: LISBON B-814			
3. ADDRESS OF OPERATOR: 811 Main Street, Suite 3500 , Houston, TX, 77002		9. API NUMBER: 43037300820000			
4. LOCATION OF WELL FOOTAGES AT SURFACE: 2601 FSL 1482 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: NESW Section: 14 Township: 30.0S Range: 24.0E Meridian: S		9. FIELD and POOL or WILDCAT: LISBON COUNTY: SAN JUAN STATE: UTAH			
11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA					
TYPE OF SUBMISSION <input checked="" type="checkbox"/> NOTICE OF INTENT Approximate date work will start: 7/1/2015 <input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: <input type="checkbox"/> SPUD REPORT Date of Spud: <input type="checkbox"/> DRILLING REPORT Report Date:	TYPE OF ACTION <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION </td> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input checked="" type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER </td> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <input style="width: 100px;" type="text"/> </td> </tr> </table>		<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input checked="" type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <input style="width: 100px;" type="text"/>
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12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc. CCI Paradox Upstream LLC (CCI) plans to plug and abandon the subject well upon approval and subsequently reclaim the well site. Please find the attached Plug & Abandon Procedure, including wellbore diagram. Thank you!					
<p style="color: red; font-weight: bold;">Approved by the Utah Division of Oil, Gas and Mining</p> <p>Date: July 15, 2015</p> <p>By: <u><i>Derek Quist</i></u></p> <p style="color: red; font-weight: bold; margin-top: 20px;">Please Review Attached Conditions of Approval</p>					
NAME (PLEASE PRINT) Ashley Noonan		PHONE NUMBER 720 319-6830			
SIGNATURE N/A		TITLE Regulatory Analyst DATE 6/1/2015			



The Utah Division of Oil, Gas, and Mining

- State of Utah
- Department of Natural Resources

Electronic Permitting System - Sundry Notices

Sundry Conditions of Approval Well Number 43037300820000

- 1. Notify the Division at least 24 hours prior to conducting abandonment operations. Please call Dan Jarvis at 801-538-5338.**
- 2. Amend Plug #1: TOC on this plug should be at a minimum depth of 7650'. If CICR is run and set @ approximately 7850', then a minimum of 200' (30 sx) is required on top of CICR. If CICR is not run, attempt to get as much cement as close to the injection perfs as possible and top of plug should be brought up to a minimum of 7650'.**
- 3. Amend Plug #2: This plug shall be an inside/outside plug and moved uphole $\pm 200'$. RIH and perforate @ 4300'. Establish circulation down the 5 1/2" casing back up/into the 5 1/2" x 9 5/8" annulus. If injection into the perfs cannot be established a 200' plug (± 25 sx) shall be balanced from $\pm 4350'$ to 4150'. If injection is established: RIH with CICR and set at 4300'. M&P 70 sx cement, sting into CICR pump 50 sx, sting out and dump 20 sx on top of CICR. This will isolate the Paradox formation.**
- 4. Move Plug #3: This plug shall be moved uphole $\pm 300'$ and spotted across previous hole in casing from 3000' to 2800'. This will isolate the holes and the Hermosa formation.**
- 5. All balanced plugs shall be tagged to ensure that they are at the depth specified.**
- 6. All annuli shall be cemented from a minimum depth of 100' to the surface.**
- 7. Surface reclamation shall be done in accordance with R649-3-34 – Well Site Restoration.**
- 8. All requirements in the Oil and Gas Conservation General Rule R649-3-24 shall apply.**
- 9. If there are any changes to the procedure or the wellbore configuration, notify Dustin Doucet at 801-538-5281 (ofc) or 801-733-0983 (home) prior to continuing with the procedure.**
- 10. All other requirements for notice and reporting in the Oil and Gas Conservation General Rules shall apply.**

Wellbore Diagram

r263

API Well No: 43-037-30082-00-00 Permit No: Well Name/No: LISBON B-814
Company Name: CCI PARADOX UPSTREAM, LLC
Location: Sec: 14 T: 30S R: 24E Spot: NESW
Coordinates: X: 652330 Y: 4226965
Field Name: LISBON
County Name: SAN JUAN

String Information

String	Bottom (ft sub)	Diameter (inches)	Weight (lb/ft)	Length (ft)
HOL1	1003	13.5		
SURF	1003	9.625	43.5	
HOL2	9450	7.875		
PKR	8413	5.5		
PROD	9450	5.5	17	
T1	8413	2.875		

Capacity
(bbl/cf)

7.661

4.094

3.951

Plug #5
 $200' / (1.37)(7.661) = 35x$

Plug #4
 $200' = 200x$
 $77/8" \times 5 1/2" (108)$
 $9 7/8" \times 5 1/2"$

Cement from 1003 ft. to surface

Surface: 9.625 in. @ 1003 ft.

Hole: 13.5 in. @ 1003 ft.

Cement Information

String	BOC (ft sub)	TOC (ft sub)	Class	Sacks
PROD	9450	5170	HC	900
PROD	9450	5170	C	150
SURF	1003	0	PC	450
SURF	1003	0	C	150

Perforation Information

Top (ft sub)	Bottom (ft sub)	Shts/Ft	No Shts	Dt Squeeze
8476	8650			
8772	8781			
8789	8875			

Formation Information

Formation	Depth
PRDX	4040
MSSP	8470
OURAY	8916
DVNN	8916

Plug #1

$(1000x)(1.11)(7.661) = 850'$

$(25x)(1.11)(7.661) = 17'$

$(25x)(1.11)(7.661) = 17'$

$(25x)(1.11)(7.661) = 17'$

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$(25x)(1.11)(7.661) = 17'$

TD: 8965 TVD: PBSD: 8783

**Lisbon B-814 Inactive AGI Well
NW SW Section 14-T30S-R24E
San Juan County, Utah
API Number: 43-037-30082**

RECOMMENDED P&A PROCEDURE
4/29/15 John Warren

Well Status:

Attempts to restore the Lisbon B-814 AGI well to injection status failed in 2014. The wellbore has multiple tight spots in the casing resulting from the Paradox Salts crushing the casing. There are two fish in the hole that are stuck due to collapsed casing. It is believed that cement can be circulated down through the upper fish but due to uphole tight spots, it is not advised to attempt setting a cement retainer above the fish unless a gauge ring indicates that casing IDs will allow the tool to be run without sticking. Top of the fish #2 is at 7866'. This is below the Cain Creek (7699 – 7714') which is considered the sealing shale.

Well Data:

Existing and proposed wellbore diagrams are attached for reference.

KB: 6482'

GL: 6468'

No tubing is hung in the well currently. H2S will be present in high concentrations.

Casing: 5 ½" 17 #/ft J-55 and N-80. Capacity = 0.0232 bbls / ft

Fish #1: Top @ 8055' consists of 17 jts tbgs, jars, 6 DCs, XO, bit sub and bit.
Total length 745 ft

Fish #2 Top @ 7866', bottom sits on Fish #1. Consists of 4 ½" swedge, XO, bumper sub,
jars, 6 DCs and intensifier. Total length 189 ft

Tight spots at: 7745 – 7747'
7713 – 7716'
7036 – 7039'
6489 – 6491'

Recommended P&A Procedure

1. Set two frac tanks. Fill one with 500 bbls of produced water. Fill the other with 300 bbls of fresh water for cement work.
2. RU safety individual to monitor H2S levels during the first stages of the P&A work.

3. RU workover rig and rig pump. May have to rig up a flare to burn off sour gas while killing the well with produced water.
4. ND tree and NU BOPE. Unload L-80 workstring. Fill well with 200 bbls of fluid. If well continues taking fluid on a vacuum, then consider increasing the size of plug #1 to circulate cement down to the open perms.
5. RIH w/ a gauge ring, with an identical OD to a cement retainer, down to the top of the Fish #2 at 7866'. The ability to successfully run a gauge ring of that size will dictate as to if a cement retainer can or cannot be utilized for plug #1.
6. If able to run a cement retainer, MU the retainer on the end of the tbg. If not, run a collar on the btm of the workstring. RIH to the top of the fish at 7866'. PU off of fish. Set the retainer, if run.
7. RU Baker Hughes cementing services. Baker's cementing recommendation is attached for reference. Pump Plug #1, 20 bbls fresh water spacer followed with 100 sacks Class G cement, 16.1 ppg density, 1.11 cu ft / sack yield. If a cement retainer was used, PU out of retainer and pump 2 sacks cement on top of the retainer. If a balanced plug was set, PU out of the cement, circulate the tbg clean and then proceed to displace the cement down through the tools leaving the top of cement at 7699'. Flush tbg with 47 bbls fresh water. This should provide a minimum of a plug from 7699 – 8055' which will be across the Cain Creek down to the top of Fish #2 and possibly deeper.
8. PU and wait on cement for 2 hrs. RIH and tag top of cement. Spot another plug if the balanced plug has dropped. If a cement retainer was used, then there is no need to wait on cement or tag plug #1.
9. PU to 4500' to spot a balanced Plug #2 across the Top of the Paradox Salt from 4300 – 4500'. Pump 20 bbls fresh water followed by 20 sacks of Class G cement with a 16.1 ppg density and a 1.11 cu ft / sack yield. PU out of the cement and flush the tbg with 27 bbls fresh water.
10. PU and wait on cement for 2 hrs. RIH and tag top of cement.
11. PU to 3300' to spot a balanced Plug #3 across the Top of the Hermosa from 3100 – 3300'. Pump 20 bbls fresh water followed by 20 sacks of Type III cement with a 14.6 ppg density and a 1.37 cu ft / sack yield. PU out of the cement and flush the tbg with 20 bbls fresh water.
12. PU and wait on cement for 2 hrs. RIH and tag top of cement.

13. PU to 1100' to spot a balanced Plug #4 across the base of the surface casing depth from 900 – 1100'. Pump 20 bbls fresh water followed by 20 sacks of Type III cement with a 14.6 ppg density and a 1.37 cu ft / sack yield. PU out of the cement and flush the tbg with 7 bbls fresh water.
14. PU and wait on cement for 2 hrs. RIH and tag top of cement. LD any tbg stood back in the rig.
15. Pump the top 300' Plug #5 from 300' to surface. Pump a 10 bbl fresh water spacer followed with 30 sacks of Type III cement with a 14.6 ppg density and 1.37 cu ft / sack yield. Fill all annuluses with cement to surface. RD Baker Hughes cementing services.
16. ND BOPE. Cut off wellhead 3' below ground level. Weld on a cap showing the P&A date, well name, API # and legal coordinates. RD workover rig.
17. Fill cellar, move wellhead equipment to the Lisbon yard and return the workstring to the Lone Cone yard.
18. Turn the well back over to Midstream construction personnel to remove junk piping and rehab the well site.

WELLBORE DIAGRAM
PROPOSED P&A OF WELLBORE

Surface Loc: 2601' FSL & 1482' FWL, Sec. 14

Operator:	CCI Paradox Midstream
Well Name:	Lisbon B-814
Lease Number:	8910079759
Location:	NESW Sec. 14-T30S-R24E
Field:	Lisbon
County, State:	San Juan County, UT
API Number:	43-037-30082
Diagram Date:	3/23/2004 jw

Revised 1-26-15 J. Warren
P&A Proposal 4-27-15 J. Warren

Well History

Spud Date: 7/8/1972
TD Reached: 8/29/1972
Completion Date: 10/13/1972

FORMATIONS

Homaker Trail 3162
Ismay 4040
Paradox Salt 4386
Base Salt 8350
Mississippian 8470
Ouray 8916

KB 6482'

GL 6468'

9-5/8" 43.5# N-80 csg set @ 1003'. Cmt'd w/ 450 sx 50/50 Poz f/b 150 sx "C" - cmt to surf (set 7/13/72)

Top of Paradox Salt 4384' MD

Top of Cain Creek 7699'
Base of Cain Creek 7714'

Base of Paradox Salt 8351' MD

Cut out Model D

Permanent Pkr at 8413'

Drilled
Cmt retainer @ 8658'
Drilled
Cmt retainer @ 8721
Drilled
Cmt retainer @ 8783'
Drilled to 8800'

Cmt retainer @ 8829'

Plug #5

Plug #4

Plug #3

Plug #2

Plug #1

PBTD 8935'

8965'

Tight spot 6489 - 6491'

Tight spot 7036 - 7039'

Tight spot 7713 - 7716'

Tight spot 7745 - 7747'

Tight Spot and most likely collapsed casing 7860-7866'

Top of Fish #2 @ 7866' - 4 1/2" swedge, XO, bumper sub, jars, 6 DCs & intensifier (total length 189') - Btm of Fish #2 setting on top of Fish #1

Top of Fish #1 @ 8055' - 17 jts tbg, jars, 6 DCs, XO, bit sub & bit (total length 745') - Btm of Fish #1 at 8800'

8476-8479'

8538-8546

8568-8640

8640-8650'

8662-8670

8772-8781'

8789-8808'

8843-8875

5-1/2" 17# J-55 & N-80 csg @ 9450'.
Cemented w/ 900 sx Halcolite; f/b 150 sx C.

Plug #5 Surface Plug
300' to Surface
30 sacks of Type III cmt, 14.6 ppg, 1.37 cu ft / sk yield

Plug #4 Across base of surface casing
Balanced Plug Tagged 900 - 1100'
20 sacks of Type III cmt, 14.6 ppg, 1.37 cu ft / sk yield

Plug #3 Top of Hermosa
Balanced Plug Tagged 3100 - 3300'
20 sacks of Type III cmt, 14.6 ppg, 1.37 cu ft / sk yield

Plug #2 Top of Paradox Salt
Balanced Plug Tagged 4300 - 4500'
20 sacks CL G cement, 16.1 ppg, 1.11 cu ft / sk yield

Plug #1 Top of Cain Creek to base of Fish #1
Balanced Plug Tagged 7699 - 8055'
100 sacks CL G cement, 16.1 ppg, 1.11 cu ft / sk yield

5/1991: Perf'd w/4 spf, acidize w/4300 gal 15% HCL SWIC acid

5/1991: Perf'd w/4 spf, acidize w/500 gal 15% HCL

8/1982: Perf'd w/4 spf, acidize w/2000 gals 28 HCL
Sqzd w/150 sx "G" cmt

9/1972: Perf'd w/ 2 spf. Acdz w/500 gals 28% HCl acid
Sqzd w/150 sx cmt

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
Sqz'd perfs w/185 sx cmt

9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
Sqz'd perfs w/200 sx cmt



Proposal No: 1001178665A

**CASTLETON COMMODITIES INTERNATIONAL
LISBON #B-814**

API # 43-037-30082-0000
LISBON Field
14-30S-24E
San Juan County, Utah
April 29, 2015

Cement Proposal

Prepared for:

John B. Warren
Vice President of Operations
CCI Paradox Upstream, LLC.
Bus Phone: 303-728-2226

Prepared by:

BRYAN J KANG
District Engineer

Service Point:

PP, FARMINGTON
Bus Phone: 505-3276222
Fax: 505-327-5766

Service Representatives:

JASON THOMAS
Sales Representative

Powered by

PowerVision



TITLE: Lisbon #B-814
TO: CCI
SUBJECT: P&A
DATE: 4/29/2015

John Warren

Thank you for choosing Baker Hughes Incorporated for your cementing operations. This package contains the following information regarding the cement job you've requested:

- Basis of Design Provided by Customer
- Basis of Design Assumed
- Proposal for Design and Pricing
- List of Future Tests to be Done for Cement Design

The cement tests that will be run for this job is listed below. Please request additional tests if you would like to see them.

- Rheology Testing
- Consistometer Gel Strength
- Fluid Loss Rate
- Free Fluid Testing

Please review the information in this package carefully and relate any questions or concerns. We look forward to working with you and providing you the best service possible.

Thank you!

RECEIVED: Jun. 01, 2015



Basis of Design

Listed below are the design criteria used to determine the slurry design. It lists the information that was provided and the information that was assumed. Please let us know if the information that was assumed is incorrect so we can update the proposal and adjust the cement design as needed.

Basis of Design Provided	Basis of Design Assumed
<ul style="list-style-type: none"> • Casing <ul style="list-style-type: none"> ○ Casing Info - 5.5 inch O.D. - 17 lbs/ft ○ Depth - 8800 ft ○ 2 Fish In Hole <ul style="list-style-type: none"> ○ Depth - 7866 ft - 8800 ft • Tubing <ul style="list-style-type: none"> ○ Casing Info - 2.875 inch O.D. - 5.9 lbs/ft • Cement Volumes <ul style="list-style-type: none"> ○ Requested Volume for Plug 1 = 100 sacks ○ Requested Volume for Plug 2 = 20 sacks ○ Requested Volume for Plug 3 = 20 sacks ○ Requested Volume for Plug 4 = 20 sacks ○ Requested Volume for Plug 5 = 30 sacks 	<ul style="list-style-type: none"> • Spacer System <ul style="list-style-type: none"> ○ Water based mud for all stages ○ Assumed 9.0 ppg mud system • Temperature <ul style="list-style-type: none"> ○ Assumed surface temperature gradient was 0.8 F/100 feet and increased + 0.1 F/ 100 feet per every 1000 feet of depth.



Proposal Overview

This is a compressed version of the proposal with a brief overview of the cement procedure and cement design. It contains the cement slurry design, the volumes of each stage and any other design parameters.

Plug 1	
<u>Spacer System</u> <ul style="list-style-type: none"> ○ <i>Fresh Water</i> <ul style="list-style-type: none"> • 8.34 <i>ppg</i> • 20.00 <i>BBLS</i> 	<u>Lead Cement System</u> <ul style="list-style-type: none"> ○ <i>Class G</i> <ul style="list-style-type: none"> • Cement Density - 16.10 <i>ppg</i> • Cement Yield - 1.11 <i>cf/sk</i> • Cement Volume - 100 <i>Sacks</i> - 20 <i>BBLS</i> • Water Needed - 11 <i>BBLS</i> • Additives <ul style="list-style-type: none"> ○ 0.3 % - R-3 ○ 0.1 % - CD-32 ○ 0.1 % - FL-52A



Proposal Overview Continued

Plug 2	
<u>Spacer System</u> <ul style="list-style-type: none"> ○ <i>Fresh Water</i> <ul style="list-style-type: none"> • 8.34 <i>ppg</i> • 20.00 <i>BBLs</i> 	<u>Lead Cement System</u> <ul style="list-style-type: none"> ○ <i>Class G</i> <ul style="list-style-type: none"> • Cement Density - 16.10 <i>ppg</i> • Cement Yield - 1.11 <i>cf/sk</i> • Cement Volume - 20 <i>Sacks</i> - 4 <i>BBLs</i> • Water Needed - 2 <i>BBLs</i> • Additives <ul style="list-style-type: none"> ○ 0.3 % - R-3 ○ 0.1 % - CD-32 ○ 0.1 % - FL-52A



Proposal Overview Continued

Plug 3	
Spacer System	Lead Cement System
<ul style="list-style-type: none">○ <i>Fresh Water</i><ul style="list-style-type: none">• 8.34 <i>ppg</i>• 20.00 <i>BBLs</i>	<ul style="list-style-type: none">○ <i>Type III</i><ul style="list-style-type: none">• Cement Density - 14.60 <i>ppg</i>• Cement Yield - 1.37 <i>cf/sk</i>• Cement Volume - 20 <i>Sacks</i><ul style="list-style-type: none">- 5 <i>BBLs</i>• Water Needed - 3 <i>BBLs</i>



Proposal Overview Continued

Plug 4	
Spacer System	Lead Cement System
<ul style="list-style-type: none">○ <i>Fresh Water</i><ul style="list-style-type: none">• 8.34 <i>ppg</i>• 10.00 <i>BBLS</i>	<ul style="list-style-type: none">○ <i>Type III</i><ul style="list-style-type: none">• Cement Density - 14.60 <i>ppg</i>• Cement Yield - 1.37 <i>cf/sk</i>• Cement Volume - 20 <i>Sacks</i><ul style="list-style-type: none">- 5 <i>BBLS</i>• Water Needed - 3 <i>BBLS</i>



Proposal Overview Continued

Plug 5	
<u>Spacer System</u> <ul style="list-style-type: none">○ <i>Fresh Water</i><ul style="list-style-type: none">• 8.34 <i>ppg</i>• 10.00 <i>BBLS</i>	<u>Lead Cement System</u> <ul style="list-style-type: none">○ <i>Type III</i><ul style="list-style-type: none">• Cement Density - 14.60 <i>ppg</i>• Cement Yield - 1.37 <i>cf/sk</i>• Cement Volume - 30 <i>Sacks</i><ul style="list-style-type: none">- 7 <i>BBLS</i>• Water Needed - 5 <i>BBLS</i>

Operator Name: CASTLETON COMMODITIES INTERNATIONAL
Well Name: LISBON #B-814
Job Description: 5 Cement Plugs
Date: April 29, 2015



Proposal No: 1001178665A

JOB AT A GLANCE

Casing Size/Weight 5 1/2 in, 17 lbs/ft

Pump Via Tubing 2 7/8" O.D. (2.469" I.D) 5.9

Total Mix Water Required 1,022 gals

Plug No: 1

Spacer

Fresh Water 20 bbls

Density 8.3 ppg

Plug Slurry

Class G Blend 100 sacks

Density 16.1 ppg

Yield 1.11 cf/sack

Displacement

Fresh Water 47 bbls

Density 8.3 ppg

Plug No: 2

Spacer

Fresh Water 20 bbls

Density 8.3 ppg

Plug Slurry

Class G Blend 20 sacks

Density 16.1 ppg

Yield 1.11 cf/sack

Displacement

Fresh Water 27 bbls

Density 8.3 ppg

Operator Name: CASTLETON COMMODITIES INTERNATIONAL
Well Name: LISBON #B-814
Job Description: 5 Cement Plugs
Date: April 29, 2015



Proposal No: 1001178665A

JOB AT A GLANCE (Continued)

Plug No: 3

Spacer

Fresh Water	20 bbls
Density	8.3 ppg

Plug Slurry

Type III Neat	20 sacks
Density	14.6 ppg
Yield	1.37 cf/sack

Displacement

Fresh Water	20 bbls
Density	8.3 ppg

Plug No: 4

Spacer

Fresh Water	10 bbls
Density	8.3 ppg

Plug Slurry

Type III Neat	20 sacks
Density	14.6 ppg
Yield	1.37 cf/sack

Displacement

Fresh Water	7 bbls
Density	8.3 ppg

Plug No: 5

Spacer

Fresh Water	10 bbls
Density	8.3 ppg

Plug Slurry

Type III Neat	30 sacks
Density	14.6 ppg
Yield	1.37 cf/sack

Operator Name: CASTLETON COMMODITIES INTERNATIONAL
Well Name: LISBON #B-814
Job Description: 5 Cement Plugs
Date: April 29, 2015



Proposal No: 1001178665A

FLUID SPECIFICATIONS

Spacer				= 20.0 bbls Fresh Water @ 8.34 ppg
PLUG NO.	VOLUME CU-FT		VOLUME FACTOR	AMOUNT AND TYPE OF CEMENT
1	111	/	1.11	= 100 sacks Class G Cement + 0.3% bwoc R-3 + 0.1% bwoc CD-32 + 0.1% bwoc FL-52 + 41.2% Fresh Water
Displacement				= 47.0 bbls Fresh Water @ 8.34 ppg
Spacer				= 20.0 bbls Fresh Water @ 8.34 ppg
2	22	/	1.11	= 20 sacks Class G Cement + 0.3% bwoc R-3 + 0.1% bwoc CD-32 + 0.1% bwoc FL-52 + 41.2% Fresh Water
Displacement				= 27.0 bbls Fresh Water @ 8.34 ppg
Spacer				= 20.0 bbls Fresh Water @ 8.34 ppg
3	27	/	1.37	= 20 sacks Type III Cement
Displacement				= 20.0 bbls Fresh Water @ 8.34 ppg
Spacer				= 10.0 bbls Fresh Water @ 8.34 ppg
4	27	/	1.37	= 20 sacks Type III Cement
Displacement				= 7.0 bbls Fresh Water @ 8.34 ppg
Spacer				= 10.0 bbls Fresh Water @ 8.34 ppg
5	41	/	1.37	= 30 sacks Type III Cement

CEMENT PROPERTIES

	PLUG NO.1	PLUG NO.2	PLUG NO.3	PLUG NO.4	PLUG NO.5
Slurry Weight (ppg)	16.10	16.10	14.60	14.60	14.60
Slurry Yield (cf/sack)	1.11	1.11	1.37	1.37	1.37
Amount of Mix Water (gps)	4.64	4.64	6.64	6.64	6.64

Operator Name: CASTLETON COMMODITIES INTERNATIONAL
Well Name: LISBON #B-814
Job Description: 5 Cement Plugs
Date: April 29, 2015



Proposal No: 1001178665A

FLUID SPECIFICATIONS (Continued)

PLUG GEOMETRY

	PLUG TOP		PLUG BOTTOM	
1	7699 ft	to	8055 ft	with 4.892 inch ID Casing PDCT = 0 ° F PDST = 208.88 ° F
2	4300 ft	to	4500 ft	with 4.892 inch ID Casing PDCT = 105 ° F PDST = 138.5 ° F
3	3100 ft	to	3300 ft	with 4.892 inch ID Casing PDCT = 96 ° F PDST = 116.3 ° F
4	900 ft	to	1100 ft	with 4.892 inch ID Casing PDCT = 81 ° F PDST = 89.9 ° F
5	0 ft	to	300 ft	with 4.892 inch ID Casing PDCT = 80 ° F PDST = 82.4 ° F

Operator: CASTLETON COMMODITIES INTERNATIONAL
Well Name: LISBON #B-814
Date: April 29, 2015



Proposal No: 1001178665A

PRODUCT DESCRIPTIONS

CD-32

A patented, free-flowing, water soluble polymer that is an efficient and effective dispersant for primary and remedial cementing.

FL-52

A water soluble, high molecular weight fluid loss additive used in medium to low density slurries. It is functional from low to high temperature ranges.

R-3

A low temperature retarder used in a wide range of slurry formulations to extend the slurry thickening time.

Type III Cement

P044

Sundry Number: 63670 API Well Number: 43037300820000

Operator Name: CASTLETON COMMODITIES INTERNATIONAL
Well Name: LISBON #B-814
Date: April 29, 2015



Proposal No: 1001178665A

End of Report

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		FORM 9
SUNDRY NOTICES AND REPORTS ON WELLS Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		5. LEASE DESIGNATION AND SERIAL NUMBER: UTSL-070008A
		6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
		7. UNIT or CA AGREEMENT NAME: LISBON
1. TYPE OF WELL Water Disposal Well		8. WELL NAME and NUMBER: LISBON B-814
2. NAME OF OPERATOR: CCI PARADOX UPSTREAM, LLC		9. API NUMBER: 43037300820000
3. ADDRESS OF OPERATOR: 811 Main Street, Suite 3500 , Houston, TX, 77002	PHONE NUMBER: 281 714-2949 Ext	9. FIELD and POOL or WILDCAT: LISBON
4. LOCATION OF WELL FOOTAGES AT SURFACE: 2601 FSL 1482 FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: NESW Section: 14 Township: 30.0S Range: 24.0E Meridian: S		COUNTY: SAN JUAN
		STATE: UTAH

11.

CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input checked="" type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <input style="width: 100px;" type="text"/>
<input type="checkbox"/> SPUD REPORT Date of Spud:			
<input type="checkbox"/> DRILLING REPORT Report Date:			

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

CCI PARADOX UPSTREAM LLC COMPLETED THE PLUGGING AND ABANDONMENT OF THE LISBON B-816 WELL ON 07/28/2015. PLEASE SEE THE ATTACHED WELLBORE DIAGRAM, AND A-PLUS WELL SERVICE POST JOB CEMENT REPORT. THE DRYHOLE MARKER WAS INSTALLED 07/30/2015. PLEASE CONTACT ASHLEY NOONAN ASHLEY.NOONAN@CONTRACTOR.CCI.COM WITH ANY QUESTIONS OR CONCERNS. THANK YOU.

Accepted by the
Utah Division of
Oil, Gas and Mining
FOR RECORD ONLY
 August 19, 2015

NAME (PLEASE PRINT) Ashley Noonan	PHONE NUMBER 720 319-6830	TITLE Regulatory Analyst
SIGNATURE N/A		DATE 8/18/2015

WELLBORE DIAGRAM**P&A Actual**

Surface Loc: 2601' FSL & 1482' FWL, Sec. 14

Operator: CCI Paradox Midstream
 Well Name: Lisbon B-814
 Lease Number: 8910079759
 Location: NESW Sec. 14-T30S-R24E
 Field: Lisbon
 County, State: San Juan County, UT
 API Number: 43-037-30082
 Diagram Date: 6/23/2015

Revised by A. Noonan 8/17/2015

FORMATIONS

Honaker Trail 3162
 Ismay 4040
 Paradox Salt 4386
 Base Salt 8350
 Mississippian 8470
 Ouray 8916

KB 6482'**Well History**

Spud Date: 7/8/1972
 TD Reached: 8/29/1972
 Completion Date: 10/13/1972

9-5/8" 43.5# N-80 csg set @
 1003'. Cmt'd w/ 450 sx 50/50
 Poz f/b 150 sx "C" - cmt to surf
 (set 7/13/72)

Top of Paradox Salt 4384' MD

Plug 1a set with 100 Sx (118 cf) of
 Class B cement with 2% CaCl from
 7870'-6985'. TOC tagged at 7467'

Top of Caln Creek 7699'
 Base of Caln Creek 7714'

Plug 1 set with 125 Sx (147.5 cf) of
 Class B cement from 8476'-7372'.

Base of Paradox Salt 8351' MD
Cut out Model D
 Permanent Pkr at 8413'

Drilled
Cmt retainer @ 8658'
 Drilled
Cmt retainer @ 8721'
 Drilled
Cmt retainer @ 8783'
 Drilled to 8800'

Cmt retainer @ 8829'

Plug 6
 Plug 5

Plug 4

Plug 3

Plug 2

Plug 1a

Plug 1

PBDT 8935'

8965'

GL 6468'
 Plug 6 set with 20 Sx Class B cement to top
 off Plug 5
 set with 40 Sx (47.2 cf) Class B cement to
 surface

Plug 4 set with 29 Sx (34.22 cf) Class B
 cement from 1113'-851'. TOC tagged at 900'

Plug 3 set with 29 Sx (34.22 cf) Class B cement
 from 3013'-2751'. TOC tagged at 2740'

Plug 2 set with 40 Sx (47.2 cf) of Class B cement
 with 2% CaCl from 4357'-3996'. TOC tagged at
 4006'

Tight spot 6489 - 6491'

Tight spot 7036 - 7039'

Tight spot 7713 - 7716'

Tight spot 7745 - 7747'

Tight Spot and most likely collapsed casing 7860-7866'

Top of Fish #2 @ 7866' - 4 1/2" swedge, XO, bumper sub, jars, 6 DCs & intensifier
 (total length 189') - Btm of Fish #2 setting on top of Fish #1

Top of Fish #1 @ 8055' - 17 jts tbg, jars, 6 DCs, XO, bit sub & bit
 (total length 745') - Btm of Fish #1 at 8800'

8476-8479' 5/1991: Perf'd w/4 spf, acidize w/4300 gal 15% HCL SWIC acid
 8538-8546
 8568-8640

8640-8650' 5/1991: Perf'd w/4 spf, acidize w/500 gal 15% HCL
 8/1982: Perf'd w/4 spf, acidize w/2000 gals 28 HCL
 Sqzd w/150 sx "G" cmt

8662-8670 9/1972: Perf'd w/ 2 spf. Acldz w/500 gals 28% HCL acid
 8772-8781' Sqzd w/150 sx cmt

8789-8808' 9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
 Sqz'd perms w/185 sx cmt

8843-8875 9/1972: Perf'd w/2 spf, acidize w/2000 gal 28% HCL
 Sqz'd perms w/200 sx cmt

5-1/2" 17# J-55 & N-80 csg @ 9450'.
 Cemented w/ 900 sx Halcolite; f/b 150 sx C.

A-PLUS WELL SERVICE, INC.

P.O. BOX 1979
Farmington, New Mexico 87499
505-325-2627 *fax: 505-325-1211

CCI Paradox Upstream, LLC
Lisbon B-814

July 24, 2015
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2601' FSL and 1482' FWL, Section 14, T-30-S, R-24-E
San Juan County, UT
Lease Number: UTSL-070008A
API #43-037-30082

Plug and Abandonment Report
Notified BLM on 7/20/15

Plug and Abandonment Summary:

- Plug #1** with 125 sxs (147.5 cf) Class B cement from 8476' to 7372' to cover the Cain Creek formation and perforations.
- Plug #1a** with 100 sxs (118 cf) Class B cement with 2% CaCl from 7870' to 6985' to cover the Cain Creek top. Tag TOC at 7467'.
- Plug #2** with squeeze holes at 4300' spot 40 sxs (47.2 cf) Class B cement with 2% CaCl from 4357' to 3996' to cover Paradox top. Tag TOC at 4006'.
- Plug #3** with 29 sxs (34.22 cf) Class B cement inside casing from 3013' to 2751' to cover the Hermosa top. Tag TOC at 2740'.
- Plug #4** with 29 sxs (34.22 cf) Class B cement inside casing from 1113' to 851' to cover the surface casing. Tag TOC at 900'.
- Plug #5** with 40 sxs (47.2 cf) Class B cement inside casing from 326' to surface to cover the surface.
- Plug #6** with 20 sxs Class B cement top off casings and install P&A marker.

Plugging Work Details:

- 7/21/15 Rode rig and equipment to Lisbon Valley, Utah. Travel to location. Spot in and RU. Function test BOP. Change pipe rams to 2-7/8" and tubing equipment. Wait on CCI 2-7/8" workstring. SDFD. Travel to Monticello, Utah.
- 7/22/15 Travel to location. Check well pressures: SICP 5.5" 40 PSI and SIBHP 0 PSI. Sniff test 0 PPM H2S. Pump 220 bbls of fresh water down casing to kill well. RU A-Plus wireline. RIH with 4.5" GR, tight spot at 6613'. Worked thru but, unable to pass 7710'. PU 1-4' x 2-3/8" plugging sub and tally rabbit 240 jnts 2-7/8" tubing tag at 7741'. Spot plug #1 with calculated TOC at 7372'. PUH to 6123'. Pump 60 bbls of fresh water down tubing, SI well. SDFD.
- 7/23/15 Travel to location. Check well pressures: SICP 30 PSI and SITP 0 PSI, 0 PPM. Blow well down. TIH and tag fish, no cement. PUH to 7870'. Spot plug #1a with calculated TOC at 6985'. Establish circulation. Reverse circulate 50 bbls. WOC. TIH and tag TOC at 7467'. Mix and pump salt gel with water 130 bbls weight 9#. Pump 72 bbls 9# mud, displace with 24 bbls fresh water to 4300'. SI well. Pressure test casing to 500 PSI, bled off. RU A-Plus wireline. Perforate 3 HSC squeeze holes at 4300'. SI blind rams. Pressured up to 1800 PSI, no rate. SDFD.
- 7/24/15 Travel to location. Open up well; no pressures. TIH to 4357'. Spot plug #2 with calculated TOC at 3996'. Reverse circulate 30 bbls. RU pump unit to mud pit mix and pump 130 bbls salt gel 9# with 30 sxs. WOC. TIH and tag plug #2 at 4006'. Reverse circulate with 30 bbls return green cement. RU pump to tubing pump 23 bbls 9# gel from 3996' to 3000' displace with 17 bbls of water. Spot plug #3 with calculated TOC at 2751'. Reverse circulate with 15 bbls. SI well. SDFD.

A-PLUS WELL SERVICE, INC.

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505-325-2627 *fax: 505-325-1211

CCI Paradox Upstream, LLC
Lisbon B-814

July 24, 2015
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Plugging Work Details (continued):

- 7/27/15 Travel to location. Open up well; no pressures. TIH and tag TOC at 2740'. RU pump to mud pit re-circulate mud to 9# mix. Pump 38 bbls 9# gel from 2719' to 1115' displace with 6.3 bbls fresh water. Spot plug #4 with calculated TOC at 851'. TIH and tag plug #4 at 900'. Circulate mud from 819' to surface. Establish circulation. Spot plug #5 with TOC at surface. Top off well. ND BOP. SI well. SDFD.
- 7/28/15 Travel to location. Open up well; no pressures. Cement at surface in 5.5" casing. Dig out wellhead. Write Hot Work Permit. Cut off wellhead. Spot plug #6 Class B cement top off casings and install P&A marker. RD and MOL to CCI pipe yard.

Jeff Brown, BLM representative was on location.
Scott Schull, CCI representative was on location.











